THE ACCIDENTS OF HUMAN LIFE; WITH HINTS FOR THEIR PREVENTION, OR THE *REMOVAL OF THEIR* CONSEQUENCES.

By NEWTON BOSWORTH,

HONORARY MEMBER OF THE LONDON PHILOSOPHICAL SOCIETY.

He that waits for an opportunity to do much at once, may breathe out his life in idle wishes; and regret, in the last hour, his useless intentions and barren zeal.—JOHNSON.

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Daniel's Life-preserver from Shipwreck, Bathing, &c.

S. Porter sc.

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PREFACE.

MUCH has been said, in *jest*, about the "Miseries of Human Life;" why may not something be said, in *earnest*, about its ACCIDENTS—those frequent sources of *deep* and *lasting* Misery?

By accidents I mean simply those sudden and unexpected events, generally of a calamitous kind, to which we are all more or less exposed. Though they are often said to be *casual* in their occurrence, they are all produced by their proper causes, as much so as the most regular and uniform appearances in nature. They are only called accidents, because previous circumstances did not appear to indi-

cate them, or, in simpler terms, because they come upon us unawares. The well-ordered mind admits not of so fickle a divinity as Chance, but

> ——— sees a God employed
> In all the good and ill that chequer life.

Nothing, therefore, can be farther from my intention than, by the term I am obliged of necessity to use, to exclude the idea of an overruling Providence, extending to the minutest events, as well as to the greatest.

To those, however, who are in the habit of reflecting upon what passes around them, it must have often appeared, not only that accidents are occasioned by inattention, ignorance, or presumption, but that their injurious consequences have been multiplied exceedingly by improper treatment, sometimes even more than by absolute neglect. The occurrence of an accident calls for prompt exertion; and often leaves no time for reasoning, deliberation, or

inquiry: if, then, the minds of the actors in the hasty scene be uninformed as to the proper mode of proceeding, it is evident that, in many cases, the danger of increasing the evil will be at least as great as the probability of removing or lessening it. And how often, especially in the country, do we meet with persons so egregiously ignorant of what is proper to be done in any emergency, that their assistance is rather to be deprecated than desired?

The design of this little volume is to do something towards the removal of the ignorance complained of, by communicating to general readers, and especially to young persons, such information as I have been able to collect on the subject of bodily accidents in general, whether arising from fire, water, journeying, heat, cold, amusements, violent exertion, or other cause, together with the best methods I could

think, or hear, or read of, for avoiding those accidents, and alleviating or removing their consequences.

Having been long accustomed to the instruction of youth, it was natural that I should consider a course of Addresses to young persons, as the best mode I could adopt of conveying the information I had to offer; for, beside the advantages my pupils would derive from this plan, it would be likely that, in consulting *their* understandings, I should be able to adapt myself the more readily to the comprehension of those classes of society who are most in need of the kind of knowledge here communicated. These Addresses were accordingly, in substance, delivered to my resident pupils, at intervals, in the course of the last half-year; and the interest they excited and preserved in the minds of my auditors, encourages me to

hope they will not be presented to the public in vain.

Our juvenile lectures were regularly honoured by the attendance of two gentlemen of this University: the Rev. James Plumptre, Fellow of Clare-Hall, and Vicar of Great Gransden in Huntingdonshire; and Frederic Thackeray, Esq. The former of these gentlemen, after witnessing the ravages of a dreadful fire, which, last autumn, destroyed a great part of Emmanuel College,*—suggested to me the present undertaking; the latter furnished me with a variety of medical and surgical remarks; and to both I am highly indebted for many valuable hints and observations with which they favoured me, during the progress of our reading, and of which I have adopted as many as my limits would permit.

Other gentlemen, too, on being informed of

* See Address I. p. 6.

my plan, readily communicated such suggestions as occurred to them, and were likely to be useful. My thanks are due, on this account, to Dr. Lettsom, the philanthropic Treasurer of the Royal Humane Society; W. Frend, Esq. of the Rock Assurance-Office; and my excellent friend Dr. Gregory, of the Royal Military Academy, Woolwich.

The intelligent reader of this little volume will, undoubtedly, meet with many things in it which have occurred to his reading, or his observation, before; but his benevolence will induce him to pardon, if not to applaud, their introduction into a work, designed chiefly for those persons whose knowledge, and whose means of acquiring knowledge, are much more limited than his own. To have omitted them, with this end in view, would have been manifestly improper.

As *utility* is the *object* of these addresses, so

familiarity is the *mode* in which I have studied to compose them: with what success, it would ill become me to decide; although, if I may judge from the readiness with which my young auditors understood me, perhaps I may venture to hope that I have not altogether failed of my purpose. And since, according to a very ancient maxim, example strikes more forcibly than precept, I have enlivened my instructions by occasional anecdotes; taking care, however, not to insert so many of them as to give to my piece the air of a story-book.

Insignificant as this publication may be deemed, in a literary point of view—if it shall prove the means of saving a fellow-creature's life, or even of procuring him an hour's exemption from unnecessary pain—if it shall, in only one instance, prevent the sighing of the mourner, or mitigate

the sorrows of the suffering—the time occupied in composing it will have been better employed than in the mere pursuit of honour or of fame.

Merton-Hall Academy, Cambridge,
Dec. 1st, 1812.

CONTENTS.

THE FOX AND THE BOAR.

A FABLE, FROM ÆSOP.

The Boar stood whetting his tusks against an old tree. The Fox, who happened to pass by at the time, asked him why he made those warlike preparations, since there was no enemy near that he could perceive. "That may be, Master Reynard," said the Boar; "but we should scour up our arms while we have leisure, you know,—for in the time of danger we shall have something else to do."

THE ACCIDENTS OF HUMAN LIFE.

INTRODUCTORY ADDRESS.

MY YOUNG FRIENDS,

It has pleased Almighty God to place us in a world where pain and pleasure, good and evil, are perpetually intermixed. Though we are surrounded with the kindnesses of our benevolent Creator, we are exposed to calamities of various kinds; though we have many reasons for gratitude, we have also many for caution; and though it be true that "there is mercy in every place," it is equally true that "dangers stand thick through all the road" which we are destined to tread in our passage through this mortal state.

Among the many inconveniences that human beings suffer, those which are occasioned by what are commonly termed ACCIDENTS, are not the least painful. So uncertain is every thing in this world, that no condition, rank, or situation can wholly exempt us from these. They sometimes happen to us when we least expect them, and at other times surprise us when we think ourselves best prepared to repel them. All the elements, as they are called, fire, air, earth, and water, seem fertile in calamity; and, however useful they are, in general, to man, they are often the causes of his severest suffering. As neither place nor condition is secure from accidents, so there is no time when we are not not exposed to them in some way or other. In short, whether we are at home or abroad, on land or on water, at rest or in motion, asleep or awake, in darkness or in day-light, our comforts may be destroyed, our limbs broken, or our lives endangered, by some sudden occurrence which we have neither the wisdom to foresee nor the power to prevent. It is true, however, that care and knowledge are often very

useful to us, though they will not absolutely insure us from danger; for, as many of the miseries and accidents of life are the fruit of negligence and ignorance, it is but fair to believe that a prudent forecast may prevent many evils, and may lessen the bad consequences of others when they happen. And so it is in fact; as a little observation will convince you. Indeed, it always has been so; and Solomon has long ago remarked, as you may remember reading in the book of Proverbs, that "*The prudent man foreseeth the evil, and hideth himself, but the simple pass on and are punished.*" It is no doubt for the purpose of self-preservation, as well as for the benefit of his fellow-creatures, that the faculty of reason was implanted in the heart of man.

Young as you are, most of you have heard of, and several of you have seen, many distressing things. If you trace back the various events of your life, from the time you first began to think and to understand, you will doubtless call to mind many tales of woe, to which you have listened, or many shocking events which, per-

haps, you yourselves have witnessed. Your attention has often been called to the destruction of houses, goods, and even lives, by fire, and to other terrible effects of that element; to instances of the loss of life by drowning, falling from horses, the crush of carriage-wheels, and a multitude of other causes; and, in many cases, where death has not ensued, broken limbs or maimed bodies, or injured health, have been the consequence of accident or imprudence. Nor is it among strangers alone that these things have happened: your own play-ground will furnish you with examples, though you have reason to be thankful, and I join you with all my heart in the feeling of gratitude, that these have but seldom occurred, and none of them has proved of very serious consequence. Let not this remark lessen your care to avoid all improper exercise, or any excess of violence in that which is proper. You know the old saying, "*Verbum sat sapienti*," which, for the sake of those who do not learn Latin, I will state in their own language—"A word to the wise is enough." Shew yourselves wise by taking the

hint, and proving that it is sufficient to restrain you from excess.

If you have paid much attention to what you have seen and heard, it is likely that you have noticed or heard some other person remark, how much the danger on some occasions has been increased by the awkwardness or ignorance of those who have given their assistance. In the happening of a fire, for instance, how much confusion is produced, how much time is lost, and how much good is prevented, by the want of knowing how to act. People running in one another's way, and spilling upon themselves or their neighbours the water which ought to supply the engine; some clamouring for one thing, and some for another; till, having at length succeeded in putting out the flames, they find, that, had they employed other methods, or thought of something at the time, which occurred to them afterwards, they would have extinguished the fire more effectually, with less fatigue, less danger, and less loss. Such, you may remember, was for some time the case during the late alarming fire at Emmanuel

College, which would probably have been much more speedily extinguished, if persons accustomed to the business, or furnished with the requisite information, had been present from the first to superintend and direct the operations of the workmen. So also in the case of drowning; when a body which has not been long under water is brought to the shore, much depends upon the means used to restore its animation. To all appearance, perhaps, the vital spark is fled; no symptom of life remains; and very little hope is entertained of renewing activity in so pale and motionless a body. If improper means are resorted to, the question is soon fatally decided, and he who was so vigorous and healthy a short time ago, is to breathe no more. On the other hand, if the spirit has not actually left its habitation of clay, means may be employed so well adapted to the case as to restore to its use the powers of the body, and preserve a life which may possibly be one day an honour to society. A medical poet* of the last

* Dr. Armstrong, in his excellent poem on *Preserving Health.*

century asserts, that "thousands have died of medicable wounds;" and it is no less true that thousands have perished through improper treatment, who might have been saved by the prompt application of other means. The great success which has attended the benevolent exertions, and judicious plans, of the Royal Humane Society, of which I shall give you an account hereafter, both suggests and confirms the observation. I have just been favoured with the sight of a letter from the worthy treasurer* of that excellent society, from which I learn, that, at the next annual meeting of the society, at least eighteen honorary medals, besides a great number of other rewards in money to assistants, &c. are to be distributed to persons, who, during the last year, have been successfully engaged in restoring animation to those who would otherwise have perished by drowning. Do you now feel anxious to know something more about a society whose object is so noble, and whose exertions, under the blessing of Providence, have been so often success-

* Dr. Lettsom.

ful? And do you wish to learn the methods which have been attended with such happy consequences? I hope you do; and, in that case, I promise very soon to gratify your curiosity. In like manner, also, there have been instances, in which persons, who have had the misfortune to break a leg, or a thigh, or an arm, have, by the awkwardness of those who removed them to their homes, been disabled for life; and I have been told that it is by no means uncommon for the simplest fractures to be so much increased by this very means, as to render both the pain, and the confinement, of the sufferer, three or four times as great as they need to have been: and all this, not so much from want of attention, as want of knowledge in the attendants. It would be easy to mention various other instances, in which ignorance has been attended with such terrible effects; but these are sufficient to convince you that it is worth while to obtain such knowledge as may be of the most essential service upon any occasion of this kind.

It is often impossible, even in ordinary cases, to act well without some degree of preparation.

How much more, then, is that preparation necessary in sudden and unusual emergencies? These are not times to think and deliberate, so much as to act; and to act promptly, or it may be in vain. If our minds be uninformed, as to the nature of the case; we are as likely to be wrong as right in what we do. I do not say that it is possible for people in general to obtain an accurate and thorough acquaintance with every case; but there are certain general principles, agreed upon by those who have paid most attention to these subjects, which it will not take any of you a long time, or much application, to learn. The advantage of this knowledge may be very great both to yourselves and others. Should you pass through life without meeting with any serious accident in your own person, you will have abundant reason for gratitude towards the great Author and Preserver of your existence. But, even then, it is very likely your fellow-creatures may some time or another need your aid. And would you not be glad to impart it? The next duty to self-preservation is that of benefiting, or striving to benefit, others; and surely the pleasure of such a duty is as

pure as its practice is useful. Would it not delight your hearts to rescue a human being from danger, to snatch him from destruction, or to minister to his wants? If you saw him sinking into a watery grave, or, being brought to shore to all appearance dead, would it not be to you a gratification of the highest kind to be the means of restoring him, as it were, again to life, to his friends, and to society? If you happened to meet with a person who had fallen into a fit, or broken a limb, or wounded himself dangerously, or exposed his life or his safety in any other way, would it not please you to be able to employ, or advise, such methods as would remove his danger, and diminish his suffering? I am persuaded it would. None of your amusements would give you half so much real and lasting satisfaction. You would be happy in the thought—happy in the action—and happy in the remembrance of your exertions: all the days of your life it would gratify the best feelings of your nature to think that you had thus been the means of making others happy. You would enjoy the high "luxury of doing good," and of knowing that you had done it.

But how shall you be able to act aright in any of these cases, without being acquainted beforehand, at least in some measure, with what is proper to be done? You would either be too much confused to contrive any thing to the purpose, or you would act at a venture, and your interference might do more harm than good. Let me entreat your attention, then, while I mention, in order, some of the principal accidents to which we are liable, and present you with the best information I have been able to collect respecting the most proper mode of proceeding when they happen. There will be nothing, either in the subjects themselves, or the manner of treating them, that you cannot readily understand; and I shall endeavour to make the series of addresses which I propose to deliver to you, as plain and as entertaining as it is in my power to do. If you should gain any thing from them which may be useful to yourselves, or enable you to be of service to others, I shall be well rewarded for my trouble, and you for your attention.

ADDRESS II.

ON ACCIDENTS FROM FIRE.—DIRECTIONS HOW TO ESCAPE FROM A BURNING HOUSE.

With the useful and agreeable qualities of fire, we are all acquainted; and, if one may judge from the eagerness with which you all rush towards it in frosty weather, none would be more ready than you are to join in its praises. It is only, however, when it is under due regulation and controul, that we have reason to admire it: when it bursts from its confinement, you know with what fury it rages, what dreadful effects it produces, and how difficult it is to stop its progress, as long as there is any thing within its reach which it is capable of consuming. No one of our common proverbs is more true than that which says—"*Fire and water are very good servants, but very bad masters.*" It is to the former only, in its character of master, that we are now to direct our attention.

Suppose you were roused from your sleep with the cry of "FIRE!" *and were informed that the house in which you had been sleeping was in flames: how would you act?* You might reply, "I would leap out of the window, as fast as possible, to save my life." Be not too quick, however, in your decision, lest you "make more haste than good speed," and break your neck in the attempt. As soon as you have received the alarm, *endeavour to collect yourself*, and be *as cool as possible;* otherwise you may, and without any good reason, expose yourself to as great a danger as that from which you are escaping, and from which a little thought and contrivance may enable you to escape without incurring any other. I do not mean that you should stand still and be burnt; but only that you should consider before you act, and "deliberate," as your copy says, "before you resolve," if it be but half a minute. You would then, perhaps, proceed in this manner.—Having slipped on any part of your clothes which lay at hand, and which would not detain you long, you might peep out at the window to see or inquire

in what direction the flames were acting; you would then judge whether there were any chance of going down as you went up, namely by the stairs; and, if so, it would be much better thus to escape than hastily and unnecessarily to expose your limbs or your life by a leap from the window. If you found it impossible to descend by the stairs you had been examining, there might be other stairs in the house of which you might avail yourself. Should these also disappoint you, it is possible that by walking upon the leads of the house, or creeping upon the roof, you might reach an adjoining house or other building, and thus be removed from danger, till some means were offered for you to reach the ground. Should all these trials fail, or should it so happen that you have no opportunity of making them, you must, after all, make your exit at the window. But when you have arrived at the spot, do not act without thinking, whatever speed it may be requisite for you to employ. Possibly some kind friend or neighbour may have planted a ladder against your window, to aid your escape, and it would be a great pity to lose

the advantage of this for want of a single look. Should this not be the case, you must consider about letting yourself down. If there be more than one window in the room, or within reach, it will be worth while to inquire which is best adapted for the purpose. Below *one*, may be iron rails or hard stones, and under the *other* a garden, or soft grass: it will take but a moment to decide in this case. Having chosen your window, throw out the bed, if you can conveniently, so as to alight in a place proper to receive you; and then, if you have not a rope-ladder, or a fire-escape,* proceed to let yourself down by means of the sheets tied together, and securely fastened either to the window, the bed-post, or any thing else which will prevent them from slipping. You would, of course, be careful to keep such good hold of your sheets, as not to drop from them till you came to their lower end, or touched the ground, the last of which might be done if the windows were not more than 18 or 20 feet high. In descending, you would either let the sheets slip through your hands, and

* See an account at the end of this address.

thus slide down as you do from a tree or a ladder, or else, which is perhaps preferable in most cases, you would remove one of your hands, and then the other, alternately lower and lower; and, finally, when you arrived at the end of the lowest sheet, if you could not yet touch the ground, you would either drop, or spring from, your hold, as circumstances or inclination might determine.

In fastening the sheets together, and in securing them at top, some attention should be paid to the kind of knot which is used; otherwise they might slip from each other, and bruises or broken limbs, or death, might be the consequence. In substances of a uniform thickness throughout, as ropes or cords, almost any kind of double knot, if pulled tightly, will be sufficient to make a safe joint; but when sheets are tied together by their corners, which run taper, to a point, they are very liable to slip, unless great care be taken to make them secure. I would, therefore, advise that before the parts are brought together to be fastened, a single but hard knot be tied at the extremity of each cor-

ner by way of safety, and which may hence be called the *safety knot;* if then the sheets be tied together by almost any knot, in such a manner that the safety knots may act as checks, it will be almost impossible for them to separate from each other. I will give you an example of this mode of fastening, by tying two handkerchiefs together; and, as you are so dexterous in making something like Gordian knots in your shoestrings, and in rejoining your broken whipcord, I have no doubt you will at once understand me, and learn my method in a trice. By the way, if you are desirous of seeing some other kinds of knots, which are not yet introduced into your practice, you may find plates of them in almost all the *Cyclopedias;* and I will shew to any young gentleman, who desires it, some curious specimens in Dr. Hutton's Mathematical and Philosophical Dictionary.

In the case of persons being so shut up by the flames, as to render it impossible for them to avoid passing through a part of them, I have heard of some wrapping themselves up in a blanket, which should be wetted if possible, and

thus rushing through that part where there appeared the least danger. This ought evidently to be a last resort; and is so dangerous an expedient, that nothing but necessity can justify its adoption.

Though I have been thus anxious to urge upon you a proper care for your own safety, I would not wish you to be so selfish as to refuse your assistance to others who may be in equal danger. If you should consider your own place of descent to be more safe and proper than any other, you will, of course, if there be other persons in the house, be desirous to assist as many of them as possible, in making their escape by means of your contrivance. Children and timid persons, who have not presence of mind to descend safely by themselves, it has been suggested, might be lowered in a basket, or by a sheet tied round the body.

In favour of the method of letting one's self down by sheets, I could produce several examples in which it has been used with success, though I find, by talking with several persons, it is not nearly so well known as it deserves to be. I

will, however, relate one remarkable escape which has lately taken place, though not from fire, yet from something as dreadful; and from which you will see the advantage of having useful knowledge stored up in the mind, and ready, when wanted, to be brought into action. You cannot have forgotten the alarm which was occasioned, while you were at home during the Christmas holidays, by the terrible murders then perpetrated in London. About the middle of December (1811), Mr. Marr and his family, who lived in Ratcliffe Highway, were all most barbarously murdered, except a female servant, who happened to be out on an errand. A few nights afterward, a similar murder, and nearly equal in atrocity, was committed in the house of Mr. and Mrs. Williamson, New Gravel Lane, not far from the former scene of bloodshed. John Turner, who lodged in the house, hearing the cry of "Murder!" arose from his bed, went down stairs, and saw a villain rifling the pockets of Mrs. Williamson. He immediately ran up stairs, took the sheets from the bed, fastened them together, lashed them to the bed-post, and thus de-

scended from the window, hanging by the sheets till the watchman came up, who received him in his arms. An alarm being immediately given, a crowd soon collected near the house, and the door was broken open; but the murderers were gone. From the circumstances of the case, as related in the newspapers, there can be no reason to doubt, that, but for this means of escape, this man would as certainly have lost his life, as the rest of the family did theirs. Of so much importance, sometimes, are those things which, at other times, appear hardly to deserve remembrance or notice.

Though I have employed so much time, and so many words, in laying down the above directions, I hope you will not think me tedious, or suppose I want to detain you too long in deliberating in a case of such great and urgent danger. If you are well acquainted with the preceding particulars, and others which you may happen at any time to think about yourselves, it will take you but a few moments to run over the whole in your minds, and to determine accordingly. I wish to make these considerations as familiar to you as

possible, that you may be able to choose the best mode of action when danger arrives; as the boar in the fable sharpened his tusks in the time of peace, that he might be prepared for war, if it should happen, and have nothing to interrupt him in the combat.

There is a story, I think in the Spectator, which will enliven this part of our subject, and at the same time shew that nothing that is likely to be useful to ourselves or others ought to be despised. "A certain Cham of Tartary, travelling with his nobles, was met by a dervise, who cried with a loud voice, 'Whoever will give me a hundred pieces of gold, I will give him a piece of advice.' The Cham ordered him the sum; upon which the dervise said,

'*Begin nothing of which thou hast not well considered the end.*'

The courtiers, hearing this plain sentence, smiled, and said with a sneer, 'The dervise is well paid for his maxim.' But the king was so well pleased with the answer, that he ordered it to be written in golden letters in several parts of his palace, and engraved on all his plate. Not

long after, the king's surgeon was bribed to kill him with a poisoned lancet at the time he let him blood. One day, when the king's arm was bound, and the fatal lancet in the surgeon's hand, he read on the bason,

'*Begin nothing of which thou hast not well considered the end.*'

He immediately started, and let the lancet fall out of his hand. The king, observing his confusion, inquired the reason: the surgeon fell prostrate, confessed the whole affair, and was pardoned; but the conspirators were put to death. The Cham, turning to his courtiers, who had heard the advice with contempt, told them, that counsel could not be too highly valued which had saved a king's life."

I would improve the moral of this story, or rather adapt it more completely to our purpose, by advising you to LET NOTHING BE THOUGHT TRIFLING WHICH MAY ONE DAY OR ANOTHER SAVE YOUR OWN LIFE OR THAT OF A FELLOW CREATURE.

Having escaped from your burning house, your next business would be to put out the


Fire Escape.
S. Porter sc

flames, and save as much of the building and furniture as possible. The means of doing this will form the subject of the next address. In the mean time, fail not to cherish in your hearts a feeling of sincere gratitude to the kind Preserver of your being, that none of you has ever yet been in a situation so alarming.

FIRE ESCAPE,

Referred to in p. 17.

This is a machine, contrived, as its name imports, for the purpose of removing persons from the upper stories of houses on fire. There have been several machines of this kind invented by different persons: the following is an account of one of the most simple.

It consists of a pole, a rope, and a basket. The pole is of fir, or a common scaffold pole, of any convenient length from 36 to 46 feet. The diameter at bottom, or greatest end, about five inches; and at the top, or smallest end, about three inches. At three feet from the top is a mortise through the pole, and a pulley fixed to

it of nearly the same diameter with the pole in that part. The rope is about three quarters of an inch diameter, and twice the length of the pole, with a spring hook at one end, to pass through the ring in the handle of the basket when used: it is put through the mortise over the pulley, and then drawn tight on each side to near the bottom of the pole, and made fast there till wanted. The basket should be of strong wicker-work, three feet and a half long, two feet and a half wide, rounded off at the corners, and four feet deep, rounding every way at the bottom. To the top of the basket is fixed a strong iron curve or handle, with an eye or ring in the middle; and to one side of the basket, near the top, is fixed a small cord, or guide rope, of about the length of the pole. When the pole is raised and set against a house, over the window from which any persons are to escape, the manner of using it is so plain and obvious, that it need not be described. The most convenient distance from the house for the foot of the pole to stand, where practicable, is about 12 or 14 feet. If two strong iron straps, about

three feet long, riveted to a bar cross, and spreading about 14 inches at the foot, were fixed at the bottom of the pole, this would prevent its turning round or slipping on the pavement; and if a strong iron hoop, or ferule, riveted (or welded) to a semicircular piece of iron spreading about 12 inches, and pointed at the ends, were fixed on at the top of the pole, it would prevent its sliding against the wall.

When these two last-mentioned irons are fixed on, they give the pole all the steadiness of a ladder; and because it is not easy, except to persons who have been used to it, to raise and set upright a pole of 40 feet or more in length, it will be convenient to have two small poles or spars of about two inches diameter, fixed to the sides of the great pole at about two or three feet above the middle of it, by iron eyes riveted to two plates, so as to turn every way; the lower end of these spars to reach within a foot of the bottom of the great pole, and to have ferules and short spikes to prevent sliding on the pavement, when used occasionally to support the great pole like a tripod. There should be two strong ash

trundles let through the pole, one at four feet and one at five feet from the bottom, to stand out about eight inches on each side, and to serve as handles, or to twist the rope round in lowering a very heavy weight. If a block and pulley were fixed at about the middle of the rope, above the other pulley, and the other part of the rope made to run double, it would diminish any weight in the basket nearly one half, and be very useful in drawing any person up to the assistance of those in the chambers, or for removing any effects out of a chamber, which it might be dangerous to attempt by the stairs.

It has been proved, by repeated trials, that such a pole as we have been speaking of can be raised from the ground, and two or three persons taken out of the upper windows of a house and set down safely in the street, in the space of 35 seconds, or a little more than half a minute. Sick and infirm persons, women, children, and many others, who cannot make use of a ladder, may be safely and easily brought down from any of the windows of a house on fire by this machine, and, by putting a short pole through the

handles of the basket, may be removed to any distance without being taken out of the basket. The pole must always have the rope ready fixed to it, and may be conveniently laid up upon two or three iron hooks under any shade or gateway, and the basket should be kept at the watch-house. When the pole is laid up, the two spars should always be turned towards the head of it. The basket should be made of peeled rods, and the pole and spars painted of a light stone colour, to render it more visible when used in the night. *Gregory's Mechanics*, Vol. II. p. 173. A lantern with a lighted candle in it, might easily be fixed to the pole, and raised up with it.

Some machines on a different plan were made by M. Daujon in France, and presented to the Lyceum of Arts, who thought them worth attention, and encouraged the inventor to proceed in his contrivances. They are too complex for description here.

In Plate I. I have given you a representation of a fire-escape, nearly resembling that which has been described, but in some respects altered with a view of improving it. Instead of the

cross bars at the bottom of the large pole, I would propose a pointed iron, by means of which, I conceive, the whole may be more easily raised, and, being soon forced into the ground whether paved or otherwise, will tend very much to keep it steady. The men who assist in raising it may, if necessary, lean upon it, or otherwise preserve it in a proper position. The short poles, also, which may serve as legs to sustain the apparatus, ought to have similar pointed irons at their lower ends. Instead of the semicircular piece of iron at the top of the larger pole, I have put two prongs in a different form, to keep it steady against the wall, when the side of the house is strong enough to allow the fire-escape to lean against it; but the form of these prongs is a matter of little consequence. The basket, as it descends, being liable to swing about, and thus perhaps to endanger or to injure the persons who are in it, a couple of strings or cords fastened to it, one on each side, would enable the persons below to regulate its descent so as to avoid any injury of this kind.

There is a patent fire-escape exhibited pub-

licly every day at a house in the Strand, London; and persons are frequently descending by means of it, from a high window to which the machine is attached. If any of you have an opportunity, while you are in London, it will be worth your while to take a peep at it. In the mean time I am happy to lay before you the following description, with which I have been favoured.

The apparatus to regulate the descent consists merely of a roller or wheel, and brake, and flat bands. The frame which contains the whole is from two to three feet long, from 12 to 15 inches broad, and of a convenient height to be entirely covered by a neat double chair, or small sofa. This frame is screwed down firmly to the floor and rafters of a chamber immediately under a window; the chamber in which the master of the house sleeps will generally be preferable, unless there be something under the window withoutside which would impede a descent, or render it dangerous. In the frame there is placed a horizontal drum-wheel, or roller, sufficiently large to receive two distinct portions of

strong flat band (like that of which horse-girths are usually made), one to be winding upon the roller, while the other unwinds, or winds off. Each of these bands has a noose at the end, and is adjusted in length according to the height of the window from the ground, so that a person who is let down by means of the band, and having the noose closed under his arms, shall just reach the ground with his feet, without being permitted to fall, or to receive any violent concussion. A heavy weight, fixed to a horizontal iron bar, is made to press upon the revolving roller in the manner of a *brake* to a mill, and this weight is so adjusted that when acting against the weight of a *man* descending by one of the bands, it shall prevent his descent from being unpleasantly quick, and at the same time does not cause it to be unnecessarily slow. When a person wishes to let himself or others down from a high window by means of this apparatus, he first puts out of the window the sofa or chair which covers the apparatus itself, and which is attached to the window-frame by two short cords or bands which prevent its falling to

the ground, but cause it to serve as a projecting platform, such as will prevent the person let down from striking against any part of the wall beneath the window. The noose at the end of one of the bands is then put over the head of the person who is to descend, and drawn sufficiently tight under his arms; after which he immediately gets upon, or is put upon, the projecting platform, and sliding from it descends gradually to the ground. Such is the facility with which this contrivance may be used, that the writer* has *seen* seven persons let down from a four-pair-of-stairs window in *three* minutes. The use of the double band is, obviously, to bring up one noose as the other descends. By means of this apparatus, a master of a family, by simply taking the precaution of sending down first one who has sufficient presence of mind to loose himself and others from the noose, may liberate a very numerous family from a most perilous situation in the compass of five or six minutes.

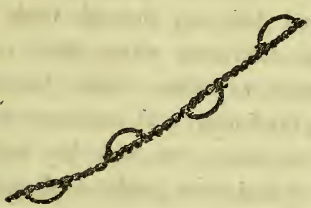
* Dr. Olinthus Gregory, of the Royal Military Academy, Woolwich, who furnished me with this description, and whom I have long had the happiness of calling my friend.

About two hundred years ago, a celebrated Italian philosopher, named Galileo, described a very simple and ingenious contrivance, practised by a friend of his for the purpose of letting himself down from high places. He took a piece of wood of the shape of a roller, two inches thick, and eight or ten long, and cut a spiral grove all along it, consisting of one turn and a half, and no more. In this grove he placed a cord, strong enough to bear him, and of a length sufficient for his purpose. He afterwards enclosed the whole in a wooden, or rather a tin tube, made with hinges to open or shut lengthwise at pleasure. Then fastening the upper end of the rope at the place from which he meant to descend, he grasped the tin case with both his hands, and hung by his arms; thus descending, he found he could stop himself at pleasure by clenching his hands closer, and by loosening his hold a little he could let himself down again; thus, by a less or greater pressure upon the tube, he could regulate his descent at pleasure.

Perhaps, after all, nothing is better calculated for general adoption, particularly where expence

is an object, than a fringed or a knotted rope. A few yards of either of these, kept in a bed-chamber, ready to be fastened in haste to a window, the leg of a table, or a bedstead, might often prove of very essential service. A rope ladder has been mentioned: the simplest form of its construction which I remember to have seen, is that recommended by Captain Manby: stiff loops are strongly spliced to a rope at the distance of a foot and a half each from the next, and are of sufficient size to allow the foot to be easily placed in and drawn out, in descending.

Captain Manby's Rope Ladder.



ADDRESS III.

ACCIDENTS FROM FIRE, CONTINUED.—DIRECTIONS FOR EXTINGUISHING FIRES.

HAVING been directed how to make your escape from a house in flames, it is natural for you to inquire how the flames are to be extinguished? Most persons act at random on such occasions, especially in the country. Through want of experience on the one hand, and want of reflection on the other, they are often as ignorant of the proper method of proceeding, as if they had never seen any thing burning in their lives; and dash on, through thick and thin, sometimes labouring where their services are not wanted, sometimes rather increasing than stopping the flames, and sometimes running into the way of others, who, with less bustle, would do a great deal more good than themselves. To try how well you are qualified to render assistance in the event of a building on fire, I will, as before, propose an example.

Suppose you were to discover a house on fire, or to be informed of such a circumstance; what would you do?

That you would be ready, and even eager, to assist in so kind an office as that of putting out the flames, I cannot for a moment doubt. The natural ardour of youth would conspire with the humane desire of doing good, to induce you to exert yourself to the utmost of your power, if you thought your services were needed, or saw any prospect of acting with advantage. But the question is, *how* would you act? If you lived in London, your business would be comparatively short. You would think it, perhaps, sufficient to alarm the family and the watchman; and give notice at some of the nearest fire-offices. During the time, however, that must necessarily elapse before effectual assistance could arrive, you would probably assist the inhabitants in making their escape, and saving their goods. You might also search for the nearest fire-plug to afford a supply of water; and then it is likely you would leave the management of the whole to the fire-men, who,

being more expert in the business, and not liking to act with inexperienced persons, would be better pleased with your absence than your help.

So far so good; but, in the country, where there are no such companies of trained men, and happily not so much occasion for them, every body may be of service who knows how to act; and therefore every body ought to pay so much attention to the subject as may qualify him for being useful on these occasions.

Supposing then, in the case before us, if it be a house, that the inhabitants have received the "dread intelligence," and are escaping from the scene of danger, they should be assisted also in the removal of their goods. At the same time not a moment should be lost in giving the alarm as generally as possible, in order to collect assistance. Some persons should be sent for the nearest engines, and if there be none in the town or village where the fire happens, waggons should be sent for them, not only for expedition, but for safety. The utmost dispatch should be used in collecting buckets, pails, and other ves-

sels, which will be highly useful on many accounts. The nearest and best supplies of water should then be sought for, and the passages to them cleared as much as possible, that no interruption or delay may take place in the operations. Supposing, now, all things ready, how would you supply the engines? If the water were near at hand, so that they could feed themselves by means of their own leathern pipes, so far all would be well; and the buckets and other vessels would be at liberty to convey water to those places where the engines could not act, or where it might be wanted in greater quantities than they could furnish. But, if otherwise, as it is evidently of the first importance that the engines should receive a full and constant supply of water, some effectual method must be adopted for this purpose. Most people, in this case, though they are ready enough to act, and act indeed with sufficient vigour, yet for want of a little thought and a very simple regulation, are not half so useful as they might be. Each one, filling and emptying his own bucket, or other vessel, for himself, is too much employed in running to and

fro; and, meeting with others in the general bustle, the greater part of the water is lost by the dashing of the vessels, and the ground is deluged with that which ought to have been applied to the quenching of the fire. You, I hope, will pursue a wiser plan, a plan which all would adopt, if they were aware of its advantages, or gave themselves time to think a moment about it. Let a lane be formed, by ranging the people in a double line from the water to the engine, or to any other place where a supply is wanted, and let the *men* be placed on one side to hand the *full* buckets, &c. from one to the other, and the *boys* and *women* on the other side to convey back the *empty* ones. Thus a sort of regular and perpetual motion will be kept up, and the water will be most effectually supplied, not only without confusion or loss, but with much less fatigue than by the common disorderly method. It is really surprising to me that people should not fall upon such a plan without delay; and yet, I believe, it is scarcely possible to attend a fire in the country, without witnessing the loss of time, inconvenience, and

disorder, which prevail on these awful occasions, until some person of superior information or experience comes forward to regulate their proceedings. If persons, in general, would make themselves acquainted with this simple fact, it would surely require no trouble to persuade them to act upon it from the first moment of assembling themselves together. You, I trust, will keep it in remembrance.

The person who happens to be stationed next to the water, and who fills the buckets, ought to be careful that no loose stones or gravel be taken up with the water, as these often stop the engine, and sometimes damage it materially.

Every thing being ready, where should the engines* play? Not, I conceive, upon the centre

* I here take it for granted that the engines are in good repair. That they are often found to be out of order, when they are most wanted, is too certain to demed; and a very lamentable fact it is. What can be more fatal and distressing than to find that the principal instrument in the extinction of fire, and upon which therefore the greatest confidence is placed, proves upon trial to be utterly useless? The practice adopted in many parishes, of examining and repairing the engines at certain times, once a quarter at least, cannot be too highly commended. We have only to wish it were universally imitated.

of the flames, unless there be a fair prospect of extinguishing them speedily; but rather on each side, to prevent them from spreading. If they should, nevertheless, appear to be extending themselves, and the adjoining buildings be in imminent danger, it will be right to consider how the communication may be cut off, whether by pulling down a part of those buildings, or otherwise. Wet blankets or cloths may also be provided, to put upon the neighbouring houses, as well as stacks of corn, hay, &c. if such happen to be near. Should there be no hope of saving the house already in flames from being utterly consumed, it would be advisable to pull it down as fast as possible, by means of large fire-hooks, such as you have often, probably, seen in churches, or by some other instruments as well adapted to the purpose. Not only would some of the materials be thus saved, but the fire itself, by being either choked or dispersed, would be more speedily put out. It ought, however, to be considered, before this measure is resorted to, whether or not it will increase the danger of any buildings in the vicinity, which in narrow streets

and populous neighbourhoods might sometimes be the case.

In passing from room to room, where the flames do not prevail to such a degree as actually to endanger life, I have been informed that the London firemen creep along the floor, with their faces as near it as will allow them to move, and in this manner escape suffocation from the smoke and heated air. So expert are they in this practice, that it is said they will pass with ease and safety along many parts of a burning house, which to the spectators appear inaccessible. A striking example of the efficacy of this method is given in the Monthly Magazine for January last. The linen having taken fire in the laundry at Corby Castle, it was found impossible to enter the room in an erect posture, without danger of immediate suffocation; but, by crawling or stooping low, the atmosphere near the floor was found so clear, that it was entered without inconvenience, the linen saved, and that part which was in flames dragged out:—thus was prevented the destruction of the premises.

The general plan upon which these firemen

act appears to be so excellent, and, in many cases, so effectual, that I have often wondered that its principles have not been detailed in printed directions for proceeding in cases of fire, and distributed by the managers of fire-offices; but I have not, upon inquiry, been able to learn, that any such printed instructions are to be obtained, otherwise I should have been happy to lay a copy of them before you in this address. It would obviously be of great advantage to the public, and I should conceive not less so to the insurance offices themselves, if a system of instructions, derived from the great experience and address of the men who are constantly employed on these occasions, were so freely circulated as to be generally known. Such instructions, at least, might be deposited at the several fire-offices, both in London and the country, and ready access to them allowed at all seasonable times: their *general* distribution, however, would be much more likely to do good.

A friend of mine, to whom I am indebted for many valuable hints, has suggested that there ought to be in every town some person resident,

as superintendant, who has been accustomed to acting at fires, and who, being on or near the spot, would be ready on all emergencies: he might also follow some other business, as his principal means of support. Another suggestion of the same gentleman's is, that regulations should be proposed, and, where practicable, societies formed, for the safe removal, preservation, and guarding of property of all kinds.

I shall conclude this address with a few remarks on the

Method of Extinguishing Fire in Chimneys.

As the inner parts of chimneys, when the soot has collected upon them, very easily take fire, it is no wonder that such occurrences very frequently happen. They are seldom attended, however, with any material danger, unless there happen to be beams or other pieces of timber wrought in the chimney, and accessible to the fire, as indeed is too often the case in old houses. At any rate, perhaps, you would not much like to sleep in a house while the chimney was on fire; and even in the day-time, you would judge it right to extinguish it as fast as possible. For

this purpose several schemes have been adopted; such as firing a loaded gun or pistol up the chimney to dislodge the burning soot,—letting down a rope, to the middle of which a bunch of wet straw or any similar substance is fastened, and by means of which it can be drawn up and down within the chimney, thus clearing it effectually from its dangerous contents. Sometimes, when the fire is not very violent, so as to endanger the person, a chimney-sweep is sent up, or let down, with the same intention. In all these methods, it will be right to be careful of the fiery materials which fall down, lest, by being scattered along the floor of the room, they should set the whole house in flames: it will also be of advantage to keep the doors and windows shut.

Water thrown into the chimney at top is seldom of much use, as, if the tunnel be upright, the water is more likely to come down the middle of it, than to act effectually along the sides, unless a board were placed so as to make an inclined plane, for the water to be poured on, and direct it to run with force against the particular side or sides where it is needed.

A more rational method, if it can be adopted, and it may in all cases where the flue which contains the fire has no other flue opening into it, is to cut off the supply of external air, by which the fire is fed and sustained. This may be done, either by stopping, with a wet blanket, the upper orifice of the chimney; or, which is better, by applying also a similar blanket either to the throat of the chimney, or over the whole front of the fireplace, closing the orifice with the utmost care to prevent the admission of the air. If there happen to be a chimney-board, or a register, nothing can be more effectual than to apply them immediately; and having by that means stopped the draught of air from below, the burning soot will be put out as completely, though not quite so speedily, as a candle is put out by an extinguisher, which acts exactly upon the same principle. If you fix your attention for one minute upon this scheme, you will see that, to insure its complete success, it is necessary that the external air be unable to find a passage to the fire, in any part whatever, from the top to the bottom of the chimney; and, with this view, it will be right to

examine it carefully, before you put full confidence in the method, in any particular case. You will find, in this, as in many other occurrences of life, that a little thought will often prevent a great deal of trouble.

The best preventative of fires in chimneys, is evidently to have them kept as free from soot as possible, by frequently sweeping them, or as the lawyers would add, "causing them to be" swept. Unless you are more fond of the sooty business than I wish you to be, you will think the addition very necessary here.

ADDRESS IV.

ACCIDENTS FROM FIRE, CONTINUED.—COMPOSITIONS TO EXTINGUISH FIRE.—DANGER FROM BURNING CLOTHES, WITH DIRECTIONS TO PUT OUT THE FLAME.

WATER and fire have long been accounted enemies; and it is in consequence of this enmity that the former is always resorted to whenever

the latter is likely to do mischief—indeed it is almost the only ingredient which is thought of, in general, when we want to put out a fire. It is not the only substance, however, that may be useful on such occasions, as you must have noticed, if ever you paid much attention to the subject; though from its fluid nature, which renders it exceedingly easy of application, and from its cheapness, as well as from its natural and inveterate hostility to fire, it is not likely it will ever be out of repute as an able extinguisher. Still it has often been a question, whether some other things might not be thought of, which by being mixed with water, or dissolved in it, would render it still more eminently useful. Several persons have turned their attention to the subject, and with some degree of success.

Among others, Mr. William Knox, of Gottenburg, in Sweden, made many experiments with compositions for this purpose. He divides them into simple and compound solutions. Of the latter sort, which he prefers as the surest and most powerful, I shall give you a few examples.

1. Water ..... 75 galls.
   Clay ..... 10 qts.
   Vitriol ..... 10 do.
   Common Salt ..... 10 do.
2. Water ..... 75 galls.
   Strong solution of wood ashes .... 18 qts.
   Fine clay reduced to powder ..... 18 qts.
3. Water ..... 75 galls.
   Red ochre, or the residuum of aqua-fortis ..... 15 qts.
   Common salt ..... 15 qts.
4. Water ..... 75 galls.
   Strongest herring pickle ..... 15 qts.
   Red ochre ..... 15 qts.

That these mixtures, or indeed almost any other which will render the water more dense without much decreasing its fluidity, would put out a fire more speedily than water alone, is very likely, since it is principally by covering the burning body and keeping from it the air which would feed the flame, that water itself is so useful for this purpose. There may be other qualities, however, of a chemical nature, which may render some things much more suitable to

be mixed with water than others; and it is only experiment that can determine, with sufficient accuracy, which are absolutely the best. It would not be difficult to make such experiments on a small scale; and as I really think the subject is of importance, and may prove useful, I shall be happy to assist you in the pursuit, whenever we have opportunity.

The following is the preparation of M. Von Aken, which I give you on his authority, as quoted in the *Pantologia*, and which appears from his account to have been eminently successful:

Burnt alum	30 lbs.
Green vitriol in powder	40
Cinabrese or red ochre powdered	20
Potter's or other clay, finely pounded and sifted	200
Water	630

With 40 *measures* of this liquor, an artificial fire, which would have required the labour of *twenty men*, and *fifteen hundred measures* of common water, was extinguished, under the direction of the inventor, by *three persons* only. The

price of this compound solution is estimated at one halfpenny per pound.

If such be the case, surely it would be worth while to keep in the fire-offices a quantity of the most approved ingredients, laid up in proper proportions, that on the first alarm of fire they might accompany the engines without delay, and be considered as necessary a part of the extinguishing apparatus as the engine itself.

Other mixtures have been, at different times, proposed by various persons; but it would be tedious and perplexing to enumerate them all. Some have recommended the strewing of sand or mould upon the burning or heated parts; and when this can be done with convenience and in sufficient quantity, it might have its use; but, in general, I am afraid the method will be found too much like catching birds by laying salt upon their tails!

Several years ago, a Dr. Godfrey, improving upon the hint of Mr. Greyl, a foreigner, tried a curious scheme for putting out fires, when they had not extended themselves beyond the room in which they began. He constructed a number of

wooden vessels, which he filled with water, oil of vitriol, and sal-ammoniac: these being thrown into rooms that were purposely set on fire, burst, after the manner of bombs, and scattering their contents by the explosion, very speedily and completely extinguished the flames. This contrivance appears better adapted to ships than houses. It does not appear to have been at all in use lately, or even to have been tried since the inventor's experiment.

Danger from burning clothes. How to extinguish the flame.

Let us now turn to another view of the subject, less awful in its appearance, less destructive to property, but not less fatal to life. Indeed, so numerous of late have been the instances of the death of females by setting fire to their clothes in the parlour or the drawing-room, as well as among children who have been left alone in the cottages of the poor, that it may justly be doubted whether more persons do not perish by this means alone than by all the other descriptions of fire put together. You think this strange,

perhaps; and can hardly believe there is any good reason for saying it; but if you had noticed, as I have done for some months past, the very great number of deaths from this cause which have been from time to time reported in the newspapers, you would be less surprised at the opinion. The fact is, these cases are very much overlooked, from the shortness of the accounts, and from their occurring privately; while the burning of a house not only commands attention while it lasts, but is generally attended with so many circumstances as to require a length of statement to describe it. Besides, it is certain that the number of lives lost by the burning of houses, is few, compared to the number of fires that happen, as any one may satisfy himself by an inspection of the accounts for any given time.* If I were to give you an account of all the cases which have fallen under my notice within the last five or six weeks, and which may fairly be ascribed to this cause alone, I should fill

* This estimate is confined to England alone. I do not therefore take into the account the number of victims at the late tremendous fire at Richmond, in Virginia. This, however, is a most extraordinary case.

up the remainder of this address with the names of the persons who have been thus awfully cut off, and of the places where these sad events occurred. I shall, however, select a few from the number, to give you an idea of the danger, and to produce in the minds of those who may read them hereafter, a salutary caution which may enable them to avoid it.

On Sunday the 1st of March, in the present year, Miss Hannah Rhodes, aged 17 years, departed this life, after enduring seven weeks unparalleled sufferings, which were occasioned by her clothes catching fire. She was so dreadfully burnt in every part of her body, that a mortification ensued, which put a period to her existence. In a moment, while she was standing at the fire, the flame ascended above her head, and before it could be extinguished produced the awful consequences above related. It appears that the tortures she endured in the interval between the accident and her death, were too excruciating to be described. Miss R. was a young lady of considerable abilites, had an amiable disposition, and was a most affectionate daughter; circum-

stances which render her loss the more to be regretted. The concourse of people assembled at Margate, to witness her interment, sufficiently evinced their regard for departed worth. *London Newspapers*, March 9, 1812.

An inquest was held at Louth, in Lincolnshire, on the 4th instant, on the body of Susan Taylor, a child of 10 years of age, whose clothes caught fire on the 14th of February, by which accident she was so dreadfully burnt as to occasion her death on the 3d of March, in violent tortures. *Stamford Paper*, March 20, 1812.

Mary Snowdon, aged 14, of Burley, in Yorkshire, was standing near the fire; her clothes caught fire, and in the fright she ran out of doors: she was so miserably burnt, that, after lingering till the following Sunday, she died. *Monthly Magazine*, March, 1812.

It is needless, however, to multiply examples in so plain a case. You must all have heard of other instances. Even when death does not take place, very painful sufferings are often endured, and the person is perhaps deformed for life—a pitiable and unsightly object. During the last

winter, a friend of mine was drinking tea with some company in the parlour, while her children were playing in an adjoining room. On a sudden, a cry was heard; and one of the children was found in flames. She had been "doing dares," as it is called, with her companions, and among other things, amused herself with swinging by her hands from the chimney-shelf. Thus her clothes caught fire, and were with difficulty extinguished; but not before she was so dreadfully burnt that her life was despaired of for several weeks. In one hospital alone, the Bath Infirmary, it appears that not fewer than thirteen children, miserably burnt, have been received within these few weeks: several of them died soon after admission.

Among the higher classes, these distressing things are chiefly to be ascribed to the lightness of the ladies' dresses, and the quick draught of modern fire-places, by which not children only, but grown-up persons, and even some more advanced in years, have lost their lives. If ladies will make fashion every thing, and think no risk

too great to run, no danger too fierce to brave, to shew their allegiance to this tyrant, they must take the consequence; though it is to be lamented their courage is not devoted to a better cause. At all events, a little more care might be taken to avoid the fire; and it is, perhaps, not too much to hope that when a few more have fallen victims to the flames, the adoption of fire-guards will become more general.

Among the poor, the danger is in great measure confined to children, who, being left alone where there is a fire, have not sense or experience enough to keep out of harm's way. A striking caution to mothers, never to leave their children alone in such a dangerous situation; and to those who have children placed under their care, to watch over them with the utmost attention.

It is well for you, my boys, that your garments are made of "sterner stuff"* than those of your sisters, otherwise, instead of scorching your trowsers or your coat-lappets, by approaching

* Shakespeare, Jul. Cæs. act III. sc. 2.

too near the fire, some of you would long before this have scorched your bodies, and perhaps have endangered your lives.

But how is the fire to be put out, when it has once seized upon a female's clothes? This question it is full time to consider. How, then, would *you* proceed, if unhappily one of your sisters, or any other of your friends, should, while standing before the fire some cold winter's evening, find her gown in flames? This is a case that would try both your courage and your skill. Perhaps you would run into the street, and cry "Fire!" This would be a most fatal step—the flames would be making progress—the sufferer would be in the greatest danger—and her only chance of escape, as far as depended upon you, would be lost. No, no! Do not leave the room till the fire is out, unless it be to fetch something that is very near at hand to put it out. If you discern the fire at the first moment, as soon as it has caught the garment, you may perhaps muffle the flames, by hastily gathering up a part of the dress with your hands, and clapping them together. You can easily take hold of the two corners

of your pocket handkerchief, and bring the parts near together, by hastily closing your hands: this is similar to what you may do to quench the fire. If this should not succeed, or if the flames have advanced too far to try it, let the person roll herself upon the floor, in such a manner that the flames may be as much as possible under her body: if the carpet be moveable, throw a part of it over her, and thus stifle the flames. A hearth-rug would answer the same purpose. In the absence of these, a cloth from the table, or even your own coat, might be thrown about her: whatever it is that you do, let it be done expeditiously; for upon this, more than upon any thing else, its success may be said to depend. As it may happen that there is no carpet in the room, or that it may be fastened down, some persons have recommended a cloth to be kept in some well-known place in the house, and to be distinguished by some appropriate name, as the *safety-cloth*, the *extinguishing-cloth*, the *fire-check*, or any other by which it may immediately be called for and known. In poor houses and cottages, a bed-quilt, hastily snatched off, and

thrown round the person on fire, would soon put out the flames. In all these cases, you see, we have recourse to our old general principle, that of preventing the access of the external air to the substance on fire; and whenever we have an opportunity of bringing this principle into action, we may, sooner or later, be sure of succeeding.

ADDRESS V.

MODES OF GUARDING AGAINST FIRE.—MISCELLANEOUS CAUTIONS.

We are so liable to the attacks of fire in various forms, and from numerous causes, that it is no wonder many persons have at different times endeavoured to find out some security against them.

Among others, Lord Stanhope, an active and ingenious nobleman of the present day, has directed his attention to the subject, and has invented a method of securing floors from the attack or pro-

gress of fire; a method which it is not difficult to employ in building new houses, or relaying floors, and which appears to be well calculated to answer the purpose his Lordship had in view.

The general method is divided into three parts, any, or all, of which may be adopted as occasion may require. 1. Under-flooring. 2. Extra-lathing. 3. Inter-securing If you attend carefully to the following description, you will soon understand the principles of the method in general, and be able to determine which particular part of it is to be preferred in any case that may occur to you.

1. Under-flooring. This method is either single or double.

In single under flooring, a fillet of common oak or fir laths, about a quarter of an inch thick, is nailed all along each side of every joist and of every main timber of the floor which is to be secured. The top of each of these laths or fillets ought to be an inch and a half below the top of the joists and timbers against which they are nailed; and they will thus form a sort of small ledge on each side of all the joists. These fillets,

in nailing, are to be well bedded in a rough plaster, formed as directed below, so that there may be no interval between them and the joists. The spaces between the joists are to be filled up with short pieces of common lath, laid by the side of each other in a row, so that their ends may rest upon the fillets, and their direction be in a direction contrary to that of the joists: these cross pieces ought also to be well bedded in the rough plaster, but are not to be fastened with nails. They must then be covered with one thick coat of the rough plaster, which is to be spread over them to the level of the tops of the joists; and in a day or two this plaster should be trowelled over close to the side of the joists, without covering the tops of the joists with it.

In double under-flooring, the fillets and short pieces of laths are applied in the manner above described; but the coat of rough plaster ought to be little more than half as thick. While this is spreading on, some more of the short pieces of laths must be laid upon it between the joists, and be dipped deep in it. They should be laid as close as possible to each other, and in the

same direction with the first layer of short laths. Over this second layer of laths, there must be spread another coat of rough plaster, which should be trowelled level with the tops of the joists without rising above them.

This rough plaster may be made of coarse lime and hair ; or, instead of hair, hay chopped to about three inches long, may be used with advantage. One measure of common rough sand, two measures of slaked lime, and three measures of chopped hay, will form, in general, a very good proportion, when sufficiently beat up together in the manner of common mortar. The hay should be put in, after the two other ingredients are well beat up together with water. This plaster should be made stiff; and, when the flooring boards are required to be laid down very soon, a fourth or fifth part of quick-lime in powder, formed by dropping a small quantity of water on the lime-stone a little while before it is used, and well mixed with this rough plaster, will cause it to dry very fast. If any cracks appear in the rough plaster-work near the joists, when it is thoroughly dry, they ought to be

closed by washing them over with a brush wet with mortar wash,—which may be prepared by putting two measures of quick-lime and one of common sand in a pail, and stirring the mixture with water, until it becomes of a proper consistence.

Before the flooring boards are laid, a small quantity of very dry common sand should be strewed over the plaster-work, and struck smooth with a hollow rule, moved in the direction of the joists, so that it may lie rounding between each pair of the joists. The plaster-work and sand should be perfectly dry before the boards are laid, for fear of the dry rot. The method of under-flooring may be successfully applied to a wooden stair-case; but no sand is to be laid upon the rough plaster-work. The expence of under-flooring, his Lordship estimates at little more than 9*d.* per square yard.

2. The method of extra-lathing, by which the second layer of laths may be imbedded in the rough plaster with which the first layer is covered, will afford additional security to ceiling joists, to sloping roofs, and to wooden par-

titions—to which indeed it is more especially applicable. Expence 6*d.* per yard for partitions; 9*d.* per yard for the ceiling.

3. Inter-securing is very similar to that of under-flooring; but no sand is afterwards to be laid upon it. This method is applicable to the same parts of a building as that of extra-lathing; but it is seldom necessary.

Such is the substance of Lord Stanhope's directions for securing the wood-work of buildings from destruction by fire. It is evident, at first view, that the method would tend very much to stop the progress of the flames (and his Lordship has proved its efficacy by experiments); which is a very material consideration, since floors and partitions, as they are generally constructed, have a contrary effect, and, instead of checking, only feed and extend the fire. The additional expence of Lord Stanhope's plan is now somewhat more than the estimate above given, owing to the advanced price of materials and labour. Though I cannot take upon me to recommend this plan, from any actual experience of its advantage, yet I confess it appears to be

deserving of your attention, whenever you are going to build a house, or alter one.

Another method of securing floors has been recommended by Mr. B. Cook, of Birmingham, who proposes that not only the rafters and beams should be formed of *Iron*, and cast hollow; but that the flooring joists should be also made of cast iron. If these latter were made light, and laid nearer each other than the wooden joists commonly used in flooring, and if they were cast with a small projecting edge all along the bottom of each joist, so that when laid down, a flat tile, or thin quarry, would just fit in between each pair of joists, and if the spaces were filled up with cheap tiles or quarries made on purpose, or even with rubbish well pressed, the floor would become fire-proof; or at least, it would be exceedingly difficult for the fire to make its way through such a floor, even with the assistance of the boards to be placed upon the joists. The boards might be screwed down with very little trouble; and the whole plan appears to be at least as effectual as that of Lord Stanhope, with the additional advantage of adding scarcely any

thing to the expence, especially in those parts of the country where the iron-work can be obtained in the neighbourhood, without the charge of any great length of carriage.

The same gentleman has proposed the application of iron to another purpose in building. You would think it odd, perhaps, to have iron stairs and stair-cases: yet such are actually recommended by Mr. Cook. They might be made of cast and sheet iron combined, or of cast iron only. In the former case, when the framing was fixed, the front and top of the step might be attached to it with six or eight screws; and in order to give it a neat finish, a light bevelled moulding might run all round the front of every step, and the jointings be neatly fastened to it with small screws, with heads countersunk into the mouldings. On the other hand, if the whole were of cast iron, the front and top of the steps might be cast in plates, and the framing cast with sunk edges, so that the steps would just fit into the groved framing; and four or six screws would fasten them in a few moments. A whole flight of stairs thus formed, would very speedily be

put together. Such stairs would be much handsomer than stone, and of half the price, or less. They would appear very beautiful, if well painted, to imitate mahogany, or any other substance that fancy might dictate; and it is evident, from their construction, that such stairs and their railings would allow much scope for taste and genius in the patterns from which they were to be cast, and admit of every variety of ornament that inclination might desire. At the same time, also, that the rich might gratify their fancy in the form and embellishments of their stairs, persons in lower circumstances might avail themselves of so durable a material. Common staircases of iron would probably be made as cheap as those of oak, if not cheaper; and Mr. C. thinks, if a manufactory were established, and a trade made of it, they might be afforded as cheap as those of any kind of wood whatsoever. But the grand advantage of these stairs would be their safety in case of fire. "Dreadful," observes Mr. C. "must be the situation of those persons, who, waked by the cry of fire, rush to the landings, find the lower rooms are burning,

the stair-case blazing and falling, and no escape left but the terrible one of precipitating themselves from a window, and running the risk of being dashed to pieces .... when, if the stair-case had been of iron, all might have escaped with little or no injury."

Having once thought of iron stair-cases, beams, and flooring joists, it will be no wonder if in other parts of buildings, especially the roof, it should be proposed to use iron instead of wood. This has accordingly been done. A few years ago, I saw in one of the iron works, near Dudley, a model of an iron roof, nearly fit to receive the outer covering of slates or tiles. It appeared exceedingly light in its construction, much more so than those made of wood, and I thought it very likely that the plan would some time or other be adopted. I have since learned that several roofs in different parts of the kingdom, have been lately constructed, as to their spars, rafters, beams, and laths, entirely of iron, but whether after the above or a similar model, I do not know; nor is it of much consequence, since as great a variety may take place among

iron roofs as among those formed of timber. An iron roof has lately been put up at Newport, in Monmouthshire. It covers a building 40 feet long and 21 feet wide over the walls; and consists of seven main couples, two leading couples, and wall plating, all of cast iron, wrought iron laths, screw-pins, &c. total weight 2 tons, 4 cwt. 2 qrs. 20 lbs. being sufficiently strong to sustain the heaviest stone tile of this country, and is in itself lighter than one of wood, of which substance there is not one particle. The main couples are made in three pieces, the collar or tie beam of which forms part of a circle, thereby giving much more head-room than is possible with wood: it requires neither side pieces nor rafters, the wrought iron laths being a substitute for both. The whole roofing, after having been fitted together, and taken to pieces again, at Aberdare iron-works, where it was cast, was conveyed in a waggon to Newport. It was fitted together again, and fixed on the walls in less than five hours, completely ready for the tiler, who, having no laths to prepare or nail on, can tile a roof in half the time it could be done

on one constructed of wood. These roofs, it is said, are applicable to buildings of all sizes, can be put up at a much less expence per square than any other, and are evidently far more durable.*

In a large public building, called the Coloured Cloth Hall, lately erected at Leeds, and consisting of five streets, averaging one hundred yards each, cast iron is substituted for wood in the main beamings, for the purpose of guarding against fire.*

I have heard of an asylum for insane persons, but I forget where it is erected, in which, not only all the parts before mentioned, such as beams, roofs, flooring joists, and stairs, but the very doors and door-cases, are all formed of iron; and there is no doubt that the scheme has been more or less adopted in various parts of the British empire, much to the safety of the buildings and those who inhabit them.

What should you think of iron bureaus, chests of drawers, book-cases, and other articles of fur-

* See the Monthly Magazine for Aug. 1810, pp. 66, 83.

iture? The same Mr. Cook, whom I have mentioned before, has written a letter to recommend such things; and has pointed out a method in which they may be made not only light and cheap, but ornamental also. I have said so much about buildings, that I have neither time nor room left to say much about their furniture; I must, therefore, take leave of this subject, and refer you to the letter itself, which you will find in the 99th number, or the XXIId volume, of Nicholson's Philosophical Journal. The other paper, about the iron stairs, is printed in the XXIVth volume of the same work.

When houses are built close together, as in streets, it is of great importance to have *party-walls*, as they are called, by means of which, especially in crowded cities, the progress of the flames has often been stopped, when otherwise they would have proved much more destructive. In London this plan is enforced by act of parliament. Those partitions between rooms which are plastered or stuccoed are much more safe than those which are wainscoted. Solid brick partitions, even if only four inches broad, are better still.

It is not enough that you build your house with as much attention to security as possible, it is necessary also, when you inhabit it, to be on your guard against the danger of fire, in whatever form it may be employed. Much injury has been occasioned by negligence on this point: houses have been set on fire, and burnt down, and sometimes lives have been destroyed, by the carelessness of servants in throwing out cinders before they have been cool; by leaving linen to dry before the fire; by the falling of the red hot poker upon the floor, when it has been incautiously left in the fire; by dropping sparks from a candle; by placing the candle too near the curtains; and by various other means,* of

* Among other less common sources of danger, it may be proper to mention that some time ago a gentleman in France sustained considerable loss from the bursting of a phial by the frost, which set some phosphorus at liberty from the water in which it was kept; thus producing flame, on the accession of air to that combustible substance. The newspapers lately recorded an instance, still more curious, of the window-curtains in a farm-house, near Gedney, in Lincolnshire, being set fire to by a pair of spectacles which were left in the window-seat, and which acting as a lens or burning-glass, collected the rays of the sun, and produced an effect which might have been highly injurious, if not speedily discovered. The curtains were burnt.

which you have probably heard at one time or another. Children and young persons have also been the cause of great mischief by the practice, to which they are so much inclined, of playing with lighted straws, paper, &c. not considering the danger to which they are thus exposing themselves and their friends. To read in bed by candle light, ought by no means to be recommended or even allowed, since it would be easy to relate many fatal consequences produced by it. Perhaps some persons, otherwise very careful, may have continued in the use of it with safety; but it is notwithstanding a very unwise plan, and is attended with so much danger, even when most carefully pursued, that it would be better laid aside altogether.

You will do well to call these hints occasionally to your remembrance, not to alarm, but to caution you; not to render your lives miserable by continued fear, but to render them safer by prudent attention.

ADDRESS VI.

ON ACCIDENTS FROM WATER.—USEFUL PRECAUTIONS.—MEANS OF RAISING BODIES FROM THE WATER.—DRAGS.

We often find that things are dangerous, in one point of view, in proportion to their utility in another. Nothing is more useful to us than water: a regular and copious supply of it is one of the greatest of temporal blessings; and yet, on the other hand, nothing, in the way of accident, is more destructive. Nay, it is not too much to assert that more lives are lost by drowning, than by all other casualties put together. If you desired a proof of this, it would only be necessary to remind you of the great number of persons who are drowned in our rivers, ponds, &c. by bathing or by accidentally falling in, and then to mention the far greater multitudes who perish in the mighty ocean, by shipwrecks, founderings, and other causes. If I could present you with

a complete list of those who, in the course of the last ten years only, have found a "watery grave," you would be utterly astonished, and your hearts would beat with anguish at the thought that so many of your fellow-creatures, who were once as lively as you are now, and thought themselves as secure, should be thus suddenly overwhelmed by the waves of death!

But not to "moralize" any longer on this awful "spectacle," I will proceed to caution you against the dangers which arise from water, and then inform you of the means which are used to recover those who are apparently drowned.

In the first place, *learn to swim*, if you can do it *conveniently* and *safely*, and if you can obtain the *approbation of your friends*. I lay much stress upon these conditions, because by attending to them, you may not only avoid many evils, and save your friends much anxiety, but you may also gain many advantages from the advice and instruction of those who are older and wiser than yourselves. I am not going to give you a dissertation upon swimming, a task for

which I am but ill qualified: I would recommend to your notice, however, some very judicious observations made by the celebrated Dr. Franklin, who was an adept in the art, and who spent more time in the water than perhaps any Englishman ever did: you will find them among his miscellaneous works in your school library. As they are too long to be copied here, I shall turn from the hints of the Doctor to the advice of your favourite old Millson,*—NEVER TO GO INTO THE WATER UNTIL YOU HAVE LEARNED TO SWIM! You remember his explanation of this apparently odd precept. "We all know," says he, "that if a boy goes out of his depth, he will, without any knowledge of swimming, or any previous instruction, soon sink; but I also know, that, by establishing one or two maxims in the mind, a boy would, in such a situation, be enabled to keep himself much longer afloat. Few

* I here refer to an excellent little tale, by Mr. Parkinson, entitled "Dangerous Sports," of which old Millson is the hero, by means of whom Mr. P. has contrived to communicate, in a very agreeable manner, a variety of good counsel and valuable information, highly worthy the attention of young persons. A few expressions I should like to see altered or omitted.

of you, perhaps, are aware that you are lighter than the water, and consequently require but a moderate exertion to keep your head above it. The *kind of exertion* you will learn by *noticing the motions of an expert swimmer*, better than by any verbal directions. But these exertions should not be performed with hurry; since they are of themselves very fatiguing, and must be more so if performed with impetuosity." With respect to corks* and bladders, I conceive they are not of much, if any, use in learning to swim: they may appear to save a little trouble at first, without promoting your improvement in the least; and, as Franklin well observes, "you "will be no swimmer till you can place some "confidence in the power of the water to sup- "port you." This confidence you can never acquire, so long as you trust to any artificial support. The instructions and example of an expert swimmer, without whom you should never venture into any deep water till you are able to

* "Learning to swim with corks, is like learning to construe Latin with a translation on the other side. It saves some pains at first, but the business is not done half so effectually." *Evenings at Home*, Vol. III. Ev. XV. p. 160.

swim, will answer the purpose of teaching you the art more safely, speedily, and completely than any other method.

2. *Be very careful where you bathe*, if you can swim ever so well, lest there should be weeds to entangle your feet, or any thing else to endanger your life. It is by the neglect of this very caution, that many good swimmers expose themselves to greater danger than those who cannot swim at all, and their very expertness becomes fatal to them, by tempting them into places where their destruction is inevitable. Such, you may remember, was the conduct, and such was the fate, of the unhappy gentleman who was drowned last summer in the river near Cambridge. He was able to swim very well—and therefore despised the thought of danger. Venturing, however, into a part of the river with which he was unacquainted, his progress was soon arrested by the weeds and rushes which grew plentifully at the bottom,* and which entangled him so com-

* I have been since informed that a part of this statement is not quite correct: the weeds were floating on the *surface* of the water, and the swimmer venturing upon or among them was soon entangled and drowned.

pletely, that all his efforts to break his hold were unavailing—he sunk, to rise no more alive. Assistance was soon procured by his friend; but it was too late. The body, when found, was brought to the shore, and the usual means employed to restore it to life; but in vain. This is not the only instance which has happened within my knowledge in the same place, and by the same means; but, as it is the latest, I thought an account of it was likely to impress you more forcibly. Thus, you see, it is not enough to learn the art of swimming; it is also necessary to be very prudent in the exercise of it.

3. *Do not expose yourselves to danger*, in any other way, unnecessarily; whether it be by walking on the sides of boats; playing on the banks of rivers, or other deep waters; sailing in a boat, except in the company of some experienced person, or unless you are well skilled in the management of your vessel; or venturing upon the ice before it is sufficiently strong to bear you. It would be easy to give you many examples of the fatal consequences of neglecting this caution; but you can probably recollect some yourselves;

and, as the danger is so evident, I hope nothing more will be needful to fix the rule upon your memory.

4. If, however, after all your care, you should be so unfortunate as to *fall into the water*, or by any other means get *out of your depth*, how ought you to act? If you could swim, you would undoubtedly make for the shore as fast as possible, or, at least, keep yourself from sinking until some one came to your assistance, or perhaps until you reached a boat. One of these you might do, if no impediment from weeds or the cramp* prevented you. But what, if you could *not* swim? Let us hear old Millson on the subject. If you wish to drown yourself, "I'll tell you," says he, "how to" do it "presently.—Kick and splash about as violently as you can, and you'll presently sink. On the contrary, if, impressed with the idea that you are lighter than the water, you avoid all violent action, and calmly and steadily strive to refrain from drawing in

* For the cure of the cramp, when swimming, Dr. Franklin recommends a vigorous and violent shock of the part affected, by suddenly and forcibly stretching out the leg, which should be darted out of the water into the air, if possible.

your breath whilst under the water, and to keep your head raised as much as you can, and gently but constantly move your hands and feet in a proper direction, there may be a great probability of your keeping afloat until some aid arrives." I know it is difficult to have what is called *presence of mind* on such occasions as these, and that it is the want of this very quality which increases the danger tenfold, and often renders escape impossible where, otherwise, it would be easy; but yet, on the other hand, it is certain that calmness without knowledge is of no use whatever, and therefore a useful hint, if treasured up in the mind, may occur to it at the moment it is wanted, and prove of the most essential benefit.

The following singular instance of a man's life being saved by very simple instructions given him at the moment of danger, is related by Mr. Nicholson, in his Philosophical Journal. "The ship Worcester was moored off Culpee, in the Ganges, in November, 1770. One of the men, who was employed in some occupation forward about the cables, slipped into the water, which I am sure was running seven or eight knots (or

miles) an hour, which is very common in that river. On the alarm being given, most of those who were upon deck ran aft, where we saw the man's head rise above the water, at the same time that he held up both his hands, and after a few seconds splashing, sunk again. Soon afterwards he rose a second time; and at that instant the commanding officer, who had a hand trumpet in his hand, called out to him—'*Keep your hands down in the water.*' He did so, and remained a considerable time afloat, while one of the boats which were riding astern, was got alongside and manned; and this relief was also retarded by a blunder from too much haste, by which she was cast off without oars on board. His fears must naturally have increased, as his distance from the ship became greater every moment; and I suppose this impression made him forget his newly acquired art; for he renewed his elevation of hands and dashing of the water, and *again sunk;* but soon rose again, and for a short time obeyed the incessant and unvaried instruction which was vociferated to him through the trumpet. Whenever he *deviated* [from this advice] *he*

sunk; and he had disappeared in this manner at least *five* times; and had been carried almost out of hearing before the boat took him up; which, however, at last happened, without any injury to his health, as he took an oar, and assisted in rowing back to the ship." No. 58, or Vol. XIV. p. 330.

5. *Never venture into cold water when your body is much heated by exercise.* This is an imprudence which has often proved fatal. Dr. Franklin relates an instance, within his knowledge, of four young men who, having worked at harvest in the heat of the day, with a view of refreshing themselves plunged into a spring of cold water: two died upon the spot, a third the next morning, and the fourth recovered with great difficulty. Nearly allied to this case, is another melancholy one which has been lately reported to us in the newspapers: On Monday evening, the 16th of February, died at her house in Grafton Street, after only two days illness, Lady Catharine Stewart, wife of Major General Stewart, and sister of Earl Darnley. The indiscreet application of water to her head *when she was warm,*

is said to have been the cause of the death of this amiable and accomplished woman. Not less dangerous is,

6. The practice of *drinking cold water when you are hot:* many have fallen victims to it; and I would, therefore, caution you most seriously against it. If you feel thirsty after violent exercise, and while in a state of perspiration, it is much better to endure the thirst patiently for a while until you become cooler, than to rush suddenly into so much danger for the purpose of quenching it; or, if you *must* drink, which I conceive is seldom necessary to be done in such amazing haste, something of a different nature should be taken, as tea or coffee. When cold water is received into the stomach in such circumstances, it seems to abstract suddenly too much heat from it, whilst all the rest of the body is in too high a temperature, and the heat rushing from these parts to supply the deficiency of the other, the whole system is thrown into disorder. Whatever may be the theory to explain its operation, the fatality of the practice is too well known to be denied. The following is an instance of a

still more foolish and destructive custom. Miss H— went to a ball in perfect health; she danced all night, and to cool herself, ate some ICE; she was seized with a dreadful pain in the stomach, which you may call the cold-ache, and died within twenty-four hours. Let the body be over-heated, and then keep the foot in ice; you will readily guess the consequence, and you will as readily imagine the injury which the constitution must suffer, when ice is swallowed and retained in the stomach, while the rest of the body is heated much beyond its usual degree. To those who may be inadvertently guilty of either of the preceding acts of imprudence, it may be of use to know, that to swallow immediately a table spoonful of brandy, or a few drops of laudanum, is the best means of counteracting its baneful consequences; though I will by no means undertake to assure you that it will always prove successful. Avoid the danger, and you will have no occasion to trust to the remedy.

Let us now return to the case of a person in danger of drowning, and inquire what means should be used to save him. If you are present,

and can make him hear you, direct him, as in the case of the seaman of the Worcester, to keep his hands and arms under water until assistance comes: in the mean time, be as active as possible in throwing towards him a rope, or a pole, or any thing which may help to bring him ashore. "Drowning men," it is said, "catch at straws:" you need not doubt, therefore, that he will eagerly seize whatever you place within his reach to assist him: thus you may succeed, perhaps, in drawing him to shore, and delivering him from his perilous situation. If you can swim, you may, in some situations, be of still more service; but I would not advise you to expose yourselves to the dangers of such a hazardous enterprise until you are strong enough to bear them, otherwise you may lose your own life without doing any good to the person you want to assist.* If it be in the winter, and he has fallen through the ice, it will not be wise for you to venture too near the hole for the sake of

* The best manner of seizing hold of a person whom you wish to save from sinking, is to grasp firmly *his arm* between the shoulder and the elbow: this will prevent him from clasping you in his arms, and thus forcing you under water, and perhaps causing you to sink with him.

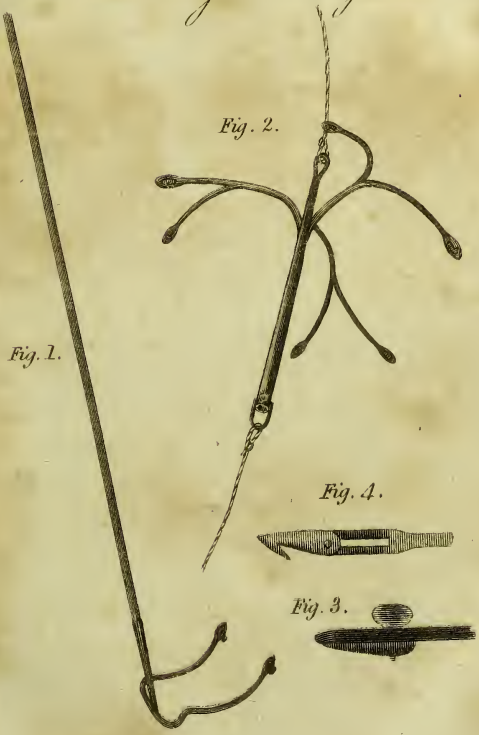
pulling him out, lest the ice should break again, and you both go down together, to the danger of your lives. In this, as in the former case, a rope, or a pole, will be of great service, if the person can support himself by hanging on the ice, or otherwise, until one is procured; but, *better than all* would be a *ladder*, which you might easily slide across the hole, and which would furnish the poor sufferer with one of the best helps he could desire in his perilous situation. Having raised himself out of the water upon the ladder, it would be easy for any of the by-standers to drag him along by means of it, as upon a sledge, until he got to a sufficient distance from the broken place, to trust the ice to bear him. On the shores of waters which are much frequented by skaters, it might be very useful to have a ladder or two kept in readiness, at some convenient place or places, so as to be had on the least possible notice. These might be made lighter than common ladders, and broader, that is, the rounds, as they are called, might be somewhat longer than those in common use.

After all your care to prevent him from sinking,

it may happen to be utterly out of your power: after struggling for a while, and making every exertion he is capable of, the unfortunate person may sink at last. What then is to be done? Is he to be left to his fate, and his case given up as hopeless? By no means. Let an immediate search be made for the body, that it may have a chance of restoration to life.

For this purpose several methods and instruments have been, at different times, contrived. The most common instrument is a drag, like those which you have seen the plasterers use in making their hair-mortar. These, however, being sharp at the points, are not so proper to raise those bodies which are naked as those which are clothed; as there is danger, in the former case, of tearing the flesh. To remedy this fault, as well as to increase the chance of finding the body, Dr. Cogan, one of the founders of the Royal Humane Society, invented two new drags, which I will now describe to you. Fig. 1, Pl. II. is a simple drag, with a pole for its handle; fig. 2 is what the Dr. calls a triangular drag, to be managed by a rope at the upper end, while a cord, with a piece of wood to

Dr. Cogan's Drags.



S. Porter Sc

float, is fastened to the lower end, for the purpose of setting the drag at liberty if it should become entangled, or otherwise regulating its use. Each of these drags is so formed, that instead of having a sharp point at the end to pierce the body, it may either have a sort of knob or rising, as at fig. 3, or a hooked point as at 4, so that it may be applied equally well either to a naked, or to a clothed body, as occasion may require. The triangular drag is made with a socket at the upper end, that a pole may be put in to work it by, instead of a rope, whenever it is thought preferable; in many cases the Doctor thinks the union of a pole and a rope at the same time to this drag, will do better than either singly. A boat and two drags, either simple or triangular, or one of each, as the case may require, will in general be sufficient, in ordinary rivers, to bring up any body, which may have sunk to its bottom.

In large and deep rivers, however, especially where there is much tide, as in the Thames, and by which the body is sometimes carried to a considerable distance from the place in which it went down, it is often necessary to have recourse

to other means of search. The water may be too deep for the pole drag to be of any use; and as in wide rivers the space to be searched is generally considerable, and what is worse, uncertain, the other drag may take up too much time in examining every part of the river where it is likely the body may be found, and after all may fail of success. To remedy these defects, a drag-net has been contrived by Mr. W. Phelps, of Fulham; and an improved apparatus, by John Miller, Esq. of Bedford. Both these inventions appear to be very ingenious, and well calculated for utility.

The *drag-net* is forty yards in length, and about fifteen feet in width; the meshes are about seven inches from angle to angle. To the bottom are affixed several pieces of lead at equal distances, to sink it; and the top part is kept floating by pieces of cork: the proportion between the lead and the cork is so well adjusted that it sweeps the bottom most closely, and preserves, at the same time, its perpendicular direction: thus it must infallibly bring up any body, whether laid or floating, within that space over which it passes;

Mr. Miller's apparatus for raising the Bodies of Persons sunk under Water.

Fig. 1.

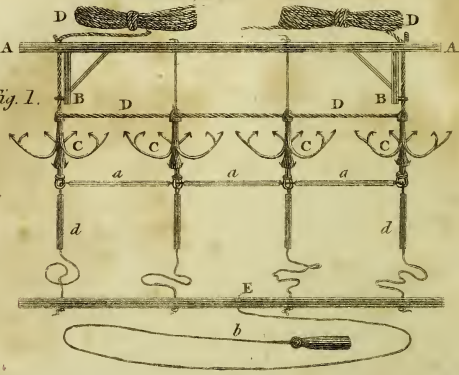
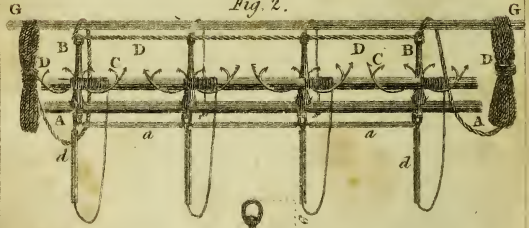


Fig. 2.



The Drag.

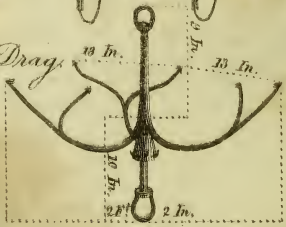


Fig. 3.

S. Porter sc.

and this space, from the dimensions of the net, is considerable.

Mr. Miller's apparatus is represented in Pl. III. At first sight, I am afraid you will think it a very perplexing affair; but be not too soon alarmed; a little attention will soon remove the difficulty. If you read the following description carefully, and compare it as you go on with the figures in the engraving, taking particular notice of those parts which are pointed out by letters, you will find it much more easy than you imagine, to understand the whole construction of it, and the manner of applying it to use.

This machine consists of a round piece of deal, A A, fig. 1, ten feet in length, and two inches and a half in diameter; at thirteen inches from each end of it, a square piece of deal, B, twelve inches in length and one inch and a half in diameter, made firm by a bracket, is let in and glued or nailed. To this bar, four six-pointed drags, CCCC, are suspended at equal distances. These drags are weighted with two pounds of lead, affixed to run on to the lower end of their shafts or stems, to steady them when in action,

and to keep their points from running into the ground, which, had they nothing to counteract their weight and preponderancy at top, they would do. The buoyancy of the bar on the one hand, and the weight of the lead on the other, have the effect of keeping the drags in an upright position when at rest in the water, and in a diagonal one when pulled forward, scraping the ground, but not entering it. Each drag, as shewn in fig. 3, has a swivel at both ends of its shaft or stem. Its whole length, including swivels, is about nineteen inches. At nine and a half inches from the top, the hooks, which are three only at their base, but which are subdivided at eight inches from their ends, take their rise. They are curved, and their points, when turned up again, are about four inches below the level of their tops, and thirteen inches asunder; and the outside point of each subdivision is thirteen inches from its adjoining one. The extreme points are split and formed into a double hook, very sharp, and pointing towards the stem.

Holes are bored through the bar A at equal distances, so as the hooks when suspended may

approach each other within five inches. Through those at the end, which are larger than the others, and made close to the pieces of wood let into the bar, the principal or drawing ropes DD pass. This rope is of considerable length and strength, and goes through the top swivels of all the drags. It is then made fast by wooden wedges driven into the holes through which it passes, at such a length as will suspend the two end drags a few inches below the end of the pieces of wood let into the bar. The other three drags are suspended at the same distance from the bar by lines of an equal length coming through the holes in the bar, and tied to their top swivels. These three drags, as well as the two end ones, are made fast to the principal or drawing rope at equal distances, with a piece of tar-line tied to their top swivels; and the two outside drags are kept in their proper situation by the principal ropes going through a staple fixed in the pieces of wood let into the bar; and the two others are kept either from approaching or entangling with one another, or the outside ones, by bored pieces of wood *aa*, of equal lengths, placed between each drag at the bottom, through which and their bottom swivels

a rope made fast to the bottom swivels of the two outside drags passes. The drags, however tied or fastened their swivels may be, always have their own rotary motion free; consequently their points, by their own gravity, will always assume and retain their proper position when in action. The bar clears the way for the drags, breaking and removing weeds, or what else might otherwise impede their progress and action. The drags, being suspended to the bar, and separated from each other by nothing but what will give way, are undulatory in their progress as the bottom is, but will yet preserve the full extent of the sweep.

Thus formed, the machine is ready for use, and may be drawn, in this shape, backward and forward at pleasure: but should the water within which it is to be used be thought to contain roots of trees, or any thing likely to occasion the necessity of drawing up or releasing any one of the drags from the obstacle it has met with, then another appendage is advisable. A bar E, less in substance than the leading, but of the same length, and which, for distinction sake, I call the floating-bar. Holes are made through this bar at the same distance from each other as those

in the leading bar; and ropes of equal lengths, (either ten feet, or any other length which may be chosen), after having been tied to the bottom swivels of all the drags, are to be brought through these holes, and there stopped, either by a knot or pieces of cork at their ends. By this means any particular drag may be got at, without altering the position of the others; for, as far as the flexibility of the rope in the intermediate spaces between the several drags will admit, each is free and independent of the other; and since, by means of these ropes, a parallelism is preserved from the leading bar to the floating one, the floating one of course brings into view the direction the one which is sunk is taking.

Should the current of water be strong, it would carry the floating bar before the leading one, in a drawing-down stream. A rope *b*, therefore, weighted with a stone or piece of lead at its end, is requisite. This will act as a kind of anchor to it; will steady it, and keep it where it ought to be, behind the leading one. If bored pieces of deal *dd*, fifteen inches long, are, after passing the ropes of the floating bar through them, made fast

by wooden wedges to those ropes, at three inches distance from the bottoms of the drags, they will, by their buoyancy and tension, prevent these ropes of the floating bar entangling round the points of the drags.

Fig. 2 shews the state in which the whole should be kept ready for use or removal.

ADDRESS VII.

ACCIDENTS FROM WATER, CONTINUED.—MEANS OF RESTORING TO LIFE PERSONS APPARENTLY DROWNED.—ACCOUNT OF THE ROYAL HUMANE SOCIETY.

HAVING directed you how to raise from the water a body which has sunk under it, I proceed to instruct you in the means to be employed in restoring it to animation. To this point I must request your most serious attention, because the proper method of proceeding in these cases is very little known among the public at large, and because, in so critical an affair, a mistake, which may appear trifling to a

person ignorant of the subject, may prove fatal to the individual in danger. It is possible, too, that one of you may be the only person present, on such an occasion as this, who is acquainted with the methods that ought to be resorted to, and on whom therefore depends, under Providence, the preservation of a fellow-creature's life. Should you, on approaching the spot where a body, just taken from the water, has been brought to shore, and finding every one ignorant of what ought to be done, be yourself also unable to give any direction, or take any step in the business, your attendance and your sympathy will be equally vain, and you may return from the melancholy scene, lamenting that you can do no good. On the contrary, if you have taken care to acquaint yourself with the means which sensible men have contrived, and which have often proved successful, in these cases, your assistance and advice may be of the most essential service; and if success attend your labours, you may retire with the most pleasing emotions in your breast, and in such a state of mind as a

"monarch* might envy." Such actions are not

* The mention of this phrase, from one of Ramsay's Tales, brought to the remembrance of one of my hearers a very interesting anecdote of Alexander Emperor of Russia, who was the means of restoring to life a peasant of that country.

Riding one day before his attendants, on the bank of the little river Wilna, and not far from the town of that name, in Lithuania, his Majesty perceived several persons dragging something out of the water, which proved to be the body of a man *apparently lifeless*. Having directed the boors around him to convey the body to a bank, he proceeded, with his own hands, to assist in taking the wet clothes from the apparent corpse, and to rub his temples, wrists, &c. for a considerable time, but without any visible effect. While thus occupied, his Majesty was joined by the gentlemen of his suite, among whom was an English surgeon in the Emperor's service, who, proposing to bleed the patient, his Majesty held and rubbed his arm, rendering also every other assistance in his power. This attempt failing, they continued to employ all other means they could devise until *more than three hours* were expired, when the surgeon declared it to be a hopeless case. His Majesty, however, not yet satisfied, desired that the attempt to let blood might be repeated, which was accordingly done, the Emperor and his noble attendants making a last effort in rubbing, &c. when they had, at length, the satisfaction to behold the blood make its appearance, accompanied with a slight groan. His Majesty's emotions were so ardent that, in the plenitude of his joy, he exclaimed "THIS IS THE BRIGHTEST DAY OF MY LIFE," and the tears which instantaneously glistened in his eyes indicated the sincerity of his exclamation.

This favourable appearance occasioned them to redouble their exertions, which were finally crowned with success. When the surgeon was looking about for some-

only useful to the individual himself and the community to which he is restored, but they leave "a relish and a fragrance upon the mind" of the performer, "and the remembrance of them is sweet."*

Let me advise you to prepare for this utility and these enjoyments by attending to the rules which I am now going to lay before you, and by embracing every opportunity, in future, of gaining such additional information as may contribute to ends so praiseworthy and so desirable. You will never, I trust, repent the little trouble it will cost you, and I shall most sin-

thing to stop the blood and tie up the arm with, the Emperor took out his handkerchief, tore it in pieces, bound up the poor fellow's arm with it, and remained till he saw him quite recovered, and proper care taken of him. His Majesty concluded this act of benevolence, by ordering the restored peasant a sum of money, and otherwise providing for him and his family.

The Royal Humane Society, on hearing of this noble instance of philanthropy, expressed their testimony of the high sense they entertained of it, by voting their gold medal, with an appropriate inscription, to the Emperor, and requesting his Majesty's gracious acceptance of it.—See the *Annual Report* of the *Royal Humane Society* for 1807.

* Dr. Horne's beautiful preface to his Commentary on the Psalms.

cerely rejoice if any thing I have said, or may hereafter say, to you, shall tend to this purpose in the smallest degree.

Rules for the Treatment of Drowned Persons, recommended by the Royal Humane Society.

1. In removing the body to a convenient place, care must be taken that it be not bruised, nor shaken violently, nor roughly handled, nor carried over any man's shoulders with the head hanging downward, nor rolled upon the ground, nor over a barrel, nor lifted up by the heels; for experience proves that all these methods may be injurious, and destroy the small remains of life. The unfortunate object should be cautiously conveyed by two or more persons; or in a carriage upon straw, lying as on a bed, with the head a little raised, and kept in as natural and easy a position as possible.

2. The body, being well dried with a cloth or flannel, should be placed in a moderate degree of heat, but not too near a large fire. The window or door of the room should be left open, and no more persons be admitted into it than

those who are absolutely necessary, as the lives of the patients greatly depend upon their having the benefit of pure air. The warmth most promising of success is that of a bed or blanket well heated. Bottles of hot water should be laid at the bottoms of the feet, to the joints of the knees, and under the arm-pits; and a warming-pan, moderately heated, or hot bricks wrapped in cloths, should be passed over the body. The natural and kindly warmth of a healthy person lying by the side of the body has been found, in some cases, particularly of children, very efficacious.

3. Should the accident happen in the neighbourhood of a warm bath, a brew-house, bake-house, glass-house, or any fabric where warm lees, ashes, embers, grains, sand, water, &c. are easily procured, it would be of great importance to place the body in any of these, moderated to a degree of heat little exceeding that of a healthy person; or, in summer, the exposure to sunshine has proved obviously beneficial. Friction with the hand, or with warm flannel or coarse cloth, so as not to injure the skin, should also

be tried, with perseverance, for a considerable period of time.

4. The subject being placed in one or other of these advantageous circumstances as speedily as possible, a bellows should be applied to one nostril, whilst the other nostril and the mouth are kept closed, and the lower end of the prominent part of the wind-pipe is pressed backward. The bellows is to be worked in this situation; and when the breast is swelled by it, the bellows should stop, and an assistant should press the belly upward, to force the air out. The bellows should then be applied as before, and the belly again to be pressed; this process should be repeated from twenty to thirty times in a minute, so as to imitate natural breathing as nearly as possible. Some volatile spirits, heated, may be held under the valve of the bellows while it works. If bellows cannot be procured, some person should blow into one of the nostrils, whilst the mouth and the other nostril are closed, as before. The use of the bellows and other parts of the apparatus of the society, are fully explained in the annexed plate. See Pl. IV.

Where bellows, or other apparatus, cannot be had, it will be highly proper to endeavour to excite the natural breathing both of inspiration and expiration, by pressure on the thorax (breast), ribs, and abdominal muscles (lower part of the belly), merely by the hands, so as to press out as large a portion of the internal air as possible; and then *removing* and *applying* the pressure alternately, in order to imitate the natural breathing, and promote the introduction of atmospheric air, in proportion to the quantity pressed out from the air-cells of the lungs. This method of exciting the lungs to action, has been tried with success in the restoration of several persons who in all probability would have perished without it.

5. If there be any signs of returning life, such as sighing, gasping, twitching, or any convulsive motions, beating of the heart, the return of the natural colour and warmth,—opening a vein in the arm, or external jugular of the neck, may prove beneficial; but the quantity of blood taken away should not be large. The throat should be

tickled with a feather, in order to excite a propensity to vomit, and the nostrils also with a feather, snuff, or any other stimulant, so as to provoke sneezing. A tea-spoonful of warm water may be administered now and then, in order to learn whether the power of swallowing be returned; and if it be, a table-spoonful of warm wine, or brandy and water, may be given with advantage; and not before, as the liquor might fall into the lungs before the power of swallowing returns. The other methods should be continued with ardour and perseverance for two hours* or upwards, although there should not be the least symptom of life.

6. In the application of stimulants, electricity has been recommended; and when it can be easily procured, its exciting effects might be tried in aid of the means already recommended; but the electrical strokes should be given in a low

* Dr. Curry is of opinion that no case of a person recently drowned ought to be given up as hopeless till the proper measures have been persisted in, *six* hours at least. See his Observations on Drowning, &c. quoted in Dr. Lettsom's *Hints*, &c. Vol. II.

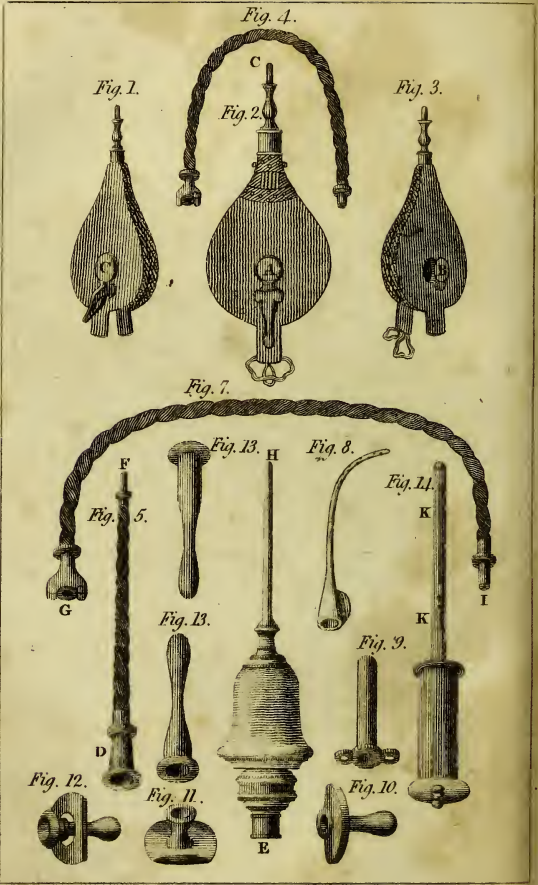


Fig. 4.
C
Fig. 1.
Fig. 2.
Fig. 3.
Fig. 7.
F
Fig. 13.
H
Fig. 8.
Fig. 11.
Fig. 5.
K
G
I
K
Fig. 13.
Fig. 9.
D
Fig. 12.
Fig. 11.
Fig. 10.
E

S. Porter Sc.

degree, and gradually as well as cautiously increased.—*Reports of R. H. Society* for 1811 and 1812.

Explanation of the Society's Apparatus.

Plate IV.

Fig. 1, 2, 3, are different views of a pair of bellows, for the double purpose of inflating the lungs and injecting warm or stimulating vapour, as of rosemary, lavender, valerian, asafœtida, &c.

The mark A, fig. 2, is a lever for filling the bellows with fresh air in inflating; B, in fig. 3, is a moveable circular piece of wood over the clack-hole, which must be turned over it in inflating, and removed aside when the bellows are used as common bellows for injecting stimulating vapours.

C, fig. 2, is a brass nozzle, which fits into fig. 5, at D, for inflating, and into fig. 6, at E, for injecting stimulating vapours.

Fig. 4 is a long flexible tube of the same description as fig. 7.

Fig. 5 is a short flexible tube, fitted to the nozzle of the bellows, C, for inflating; its tube, F, fits into fig. 8, 9, 10, 11, 12.

Fig. 6 is a brass box, inclosed in wood, to contain the stimulating substance, and is to be connected at E with the nozzle of the bellows, fig. 1, and at H with the long pipe, fig. 7.

Fig. 7, a long flexible tube, which being fitted at G upon fig. 6 at H, is used for injecting vapour or smoke.

Fig. 8, a curved silver pipe, to fit on fig. 5, for inflating the lungs, by passing it down the throat, beyond the glottis.

Fig. 9, a canula, for bronchotomy; it fits on fig. 5, at F.

Fig. 10, 11, 12, are nostril-pipes of various sizes; they fit on fig. 5, at F.

Fig. 13, are clyster-pipes of different sizes; they fit on fig. 7, at I.

Fig. 14 is a syringe with a flexible tube K K, for injecting cordials into the stomach.

These instruments, and four glass bottles with ground stoppers, to contain remedies, comprehend the instruments recommended by the Royal Humane Society for the recovery of persons apparently dead. They are contained in a mahogany chest, lined with baise, which has a

lift-out for sponge and flannels, and apertures for flint, steel, tinder-box, and matches.

Directions for their use: When intended to inflate, turn the circular piece of wood, B, fig. 3, over the clack-hole; then fix the short flexible tube, fig. 5, to the brass nozzle of the bellows, fig. 2, at C. The ivory pipes, fig. 10, 11, 12, for the nostril; the curved silver pipe, fig. 8, for the throat; and the silver canula, fig. 9, for bronchotomy; each of which, as before described, is adapted to the plug of the short flexible tube. When you wish to inflate, press the brass lever, A, fig. 2, open the bellows; then let go the lever, and, by shutting the bellows, force the air into the lungs.

To extract the air, open the bellows without touching the lever; and to expel the foul air, press the lever (to open it), and shut the bellows, by which means the extracted foul air will be thrown away; then still keeping the lever open, you are to open the bellows, by which means it will be again filled with fresh air: let the brass lever down, and proceed to imitate inspiration and expiration. It may be,

perhaps, necessary, at first, to fill two or three times before you extract once; and for this purpose you must remember to keep the lever open whenever the bellows are emptied, in order to take in more fresh air, by the dilation, &c. &c. When the brass lever is shut, and the circular wood is removed from off the clack-hole, it is a common pair of bellows.

The vulgar notion, that a person will recover in a few minutes, or not at all; and the ignorant, foolish practice of ridiculing those who are willing to persevere, as if they were attempting impossibilities, has most certainly caused the death of many who might otherwise have been saved. Most of the above rules are happily of such a nature, that they may be begun immediately, and that by persons who are NOT *acquainted with the medical art;** yet it is always advisable to

* The newspapers of the present month (June, 1812) give an account of a young person who was drowned by throwing herself into the Thames, near Millbank, on Saturday the 30th of May. She was immediately observed; and assistance being afforded by means of boats, the body was brought on shore, after it had been *seven minutes* in the water. There were at the time *symptoms of animation, but no medical man could be found before she was entirely dead!*

seek the assistance of some regular practitioner as soon as possible; not only as bleeding is proper, and sometimes necessary, but as it is to be presumed, that such a one will be more skilful and expert, and better able to vary the methods of procedure as circumstances may require.*

To the above excellent rules, sanctioned by the Royal Humane Society, and circulated in their annual reports, it may be proper to add the following directions from another quarter, respecting the mode of treatment which ought to be adapted on the re-appearance of life.

Should you be so happy as to succeed in your attempt, it will be very necessary, when complete sensation is returned, that additional care be taken to cherish the vital action by the most soothing means. All violent proceedings should therefore be immediately abandoned; and the patient should be indulged with as much silence as possible. At that important crisis, moderate friction only is requisite. If the reviving person happen to be in the warm bath, he may either

* See Dr. Lettsom's *Hints designed to promote Beneficence, Temperance, and Medical Science,* Vol. II. p. 290.

remain there, provided his sensations be easy and agreeable, or be removed to a comfortable bed, after being expeditiously dried with warm flannels. Fomentations may be applied to the pit of the stomach, bladders of warm water placed upon the left side; the mouth cleared of froth and mucus, and a little white wine dropped on the tongue. All strong stimulants, however, should at this important juncture be avoided as injurious. The patient ought rather, for a short interval, to be resigned to the efforts of nature, and left in a composed and quiescent state: as soon as he is able to swallow freely, and is desirous of taking nourishment, warm wine, or tea with a few drops of vinegar instead of milk, or gruel, warm beer, and the like, should be given in small doses frequently repeated. Great caution is evidently necessary at the moment of restoration, and for some time afterward, lest all the advantage you have gained should be suddenly lost again; in the same manner as a fire which is just beginning to revive, will be in danger of utter extinction if you overload it hastily with coals.

It may be proper to observe here, that the means of restoration above recommended are applicable to various other cases of apparent death; such as *hanging*, the stroke of *lightning*, *suffocation by damps and noxious vapours*, whether proceeding from *coal-mines*, the *confined air of wells*, *cisterns*, *caves*, or the *must of fermenting liquors;* to those seized with *apoplectic* and *convulsive fits*, and to those whose lives are endangered by the operation of *intense frost*.

Account of the Royal Humane Society.

I have so often mentioned this society, in the last two addresses, without giving you any particular account of it as I promised to do, that I fear you will suspect me of forgetting my promise. I have no design, however, to disappoint you, and shall, therefore, enter upon the pleasing task immediately.

Before the rise of this admirable society, it was the universal practice to consider every one as dead as soon as he had ceased to breathe; and to look upon the vital powers as *destroyed*,

when they were only *suspended.* Hence there is very great reason to fear that vast numbers of persons have, in all ages, been placed in untimely graves, who were only *still*, and not *dead.* Sometimes, indeed, when life appeared to be utterly gone, an unexpected restoration would take place, to the surprise of those who beheld it, or heard of it. But these instances were rare; and were generally reckoned so very extraordinary, that common evidence was not sufficient to make people believe them. Still, however, several instances were fully proved to the satisfaction of impartial minds; and about sixty years ago, Dr. John Fothergill, a noted physician of that time, had a paper printed to shew "the possibility of saving many lives, without risking any thing." He was dissatisfied with the common rules of judging whether a person was dead or not, particularly in sudden cases; and, being a very benevolent man, he wished to excite attention to the subject; but though his remarks were addressed to one of the most learned societies* in England, they did not, at the time, produce any

* The Royal Society of London.

good effect. Several facts occurred, in various parts of the continent, which proved the Doctor's opinion to be right; but no general attention was paid to the subject till many years afterwards.

To Holland belongs the honour of the first society that ever was instituted for the express purpose of rescuing persons from death by drowning. In that country, intersected as it is in all directions by canals and inland seas, many persons were annually drowned for want of proper assistance to help them out of the water, or of proper treatment when they were brought to land. As much as possible to remedy this evil, a number of gentlemen united themselves into a society, at Amsterdam, in the year 1767, and offered premiums to those who saved the life of a citizen in danger of perishing by water. This had a good effect, and the example was more or less followed at Milan, Venice, Hamburgh, various parts of Germany, and Paris. The society at Amsterdam, which you know is the capital city of Holland, published accounts from time to time, of the methods of treatment that

were adopted, and of the success which followed their application. In the year 1773, these accounts were translated into English by Dr. Cogan, now of Bath, and fully proved that it was possible, in many instances, to recover persons that, from drowning, were apparently dead.

Strange as it may seem, even these statements failed to make any general impression upon the mind of the public in England. One gentleman, however, [illegible] they deeply interested: this was the late excellent Dr. William Hawes, whose benevolent soul was fired with the hope thus afforded him of saving the lives of many of his fellow creatures. The very same year in which he received the accounts from Holland (1773), he set about the noble project which lay so near his heart. By public advertisement he offered rewards to persons who should rescue bodies from the water, between London and Westminster bridges, within a certain time after the accident, bring them to places appointed for their reception, and give immediate notice to him. For some time his plan was treated with ridicule, and encountered much opposition: his object seemed

so much like an attempt to raise the dead, that many persons either could not, or would not, see the difference between them, and therefore looked upon him as the patron of a vain and visionary scheme. But his ardour and his perseverance were crowned with success: in less than a year he had the happiness, with the assistance of other medical men, of saving many lives which would otherwise have been lost. During this period, he paid all the rewards himself, and thus expended a considerable sum in pursuit of his favourite design. His friend Dr. Cogan remonstrating with him on the injury his private fortune would sustain from a perseverance in these expences, it was agreed that each of these gentlemen should bring fifteen friends to a meeting at the Chapter Coffee-house, for the express purpose of forming a Humane Society in London.

In the summer of the year 1774, the proposed meeting took place, the society was formed, subscriptions were entered into, rewards were publicly advertised, bodies were rescued from the water, and, at length, several were restored to life. These successful instances gave great

encouragement to the projectors and supporters of the new society, who not only rejoiced in such rewards of their labours, but were also stimulated by them to fresh activity, and renewed determinations to persevere. They had, however, many prejudices to encounter. Their attempts were for a while treated, not only by the vulgar, but by some of the learned, and even by a few eminent physicians, as idle and visionary, and placed upon a level with professing to raise the dead. Such prejudices could only be removed by incontestible facts. "Happily," says Dr. Hawes, "the animated exertions and early subscriptions of a few individuals enabled us to produce them before our little fund was exhausted."

The concerns of the rising society were chiefly managed during many years by Doctors Cogan and Hawes: the former prepared the Annual Reports for the first six years; and the latter, in 1776, began a course of lectures on suspended animation, a subject which had never been rationally treated to any extent before. These lectures, which excited the attention not only of

medical students, but of the public, to so important an object, were continued several years, and contributed very materially to forward the views of the society. In 1777, the Doctor distributed no fewer than seven thousand copies of his "Address on Premature Death and Premature Interment;" and offered "the reward of one guinea to any nurse or other attendant on any child or grown person returning to life, by their humane attention; provided the fact was ascertained by a gentleman of the faculty, or three creditable persons." By his advice the society offered prize medals for the best dissertations on subjects connected with suspended animation, which served still further to advance the cause of resuscitation, by calling forth many observations tending to improve both its theory and its practice. When Dr. Cogan returned to Holland, in 1780, the task of drawing up the annual reports devolved upon Dr. Hawes, who, much to the advantage of this society, regularly discharged this important office, in addition to his other exertions, until his lamented death in 1808.

In the mean time the society continued to

flourish. Intelligent men no longer doubted its utility. The assistance of the faculty was readily given to its exertions, which became not only more extended, but more successful. The public at large took an increasing interest in its concerns; and humane persons, of all ranks, were actively intent on promoting its benevolent designs. His Majesty, in 1784, became its immediate patron; and, in 1790, granted to the society a plot of ground contiguous to the Serpentine River in Hyde-Park, where a receiving house has been since erected, and furnished with a most excellent set of apparatus for the recovery of drowned persons. There is now a great number of such receiving houses in the neighbourhood of London, on both sides the river Thames, in which the instruments used by the society are kept in constant readiness for use on the shortest notice.

On the death of Dr. Hawes, whose abundant labours in the cause of humanity and benevolence entitle him to rank in the same class with a Howard and a Berchtold, he was succeeded in his office of treasurer, and in the task of preparing

the Annual Reports, by Dr. Lettsom, a gentleman who, having been long actuated by the spirit, is every way worthy of treading in the steps, of his illustrious predecessor.

If you ever have an opportunity of examining the Annual Reports of which I have been speaking, you will find them very interesting indeed: they contain not only the excellent rules acted upon and recommended by the society in the several cases which come under their notice, descriptions of instruments, lists of subscribers, and a general account of the success of the past year, but a particular detail of the most remarkable cases, with an account of the circumstances attending them, and of the precise effects produced by the methods employed. Some of these cases are particularly striking, and serve not only to shew the value of the institution, but also to improve its plans, and to throw much light upon the general subject.

At first, for want of knowing the right method of proceeding, when a body was taken out of the water, the exertions of the society were often made in vain. Though they often suc-

ceeded, often enough to encourage the supporters of the society to persevere, yet they more frequently failed: not more than one trial in four, perhaps even a less number, proved successful in the early period of the society's existence. But "practice," they say "makes perfectness," at least it has a tendency that way; and experience, we know, teaches wisdom. It is not wonderful, therefore, that such observing men, and such apt learners, as the leading members of the Humane Society, should soon make improvements in their methods of treatment. They presently were enabled to restore almost half the cases they took in hand; and, at length, a much greater proportion still. It appears from the last report (1812) that out of 127 cases, 108 were successful, and only 19 failed. The whole number of cases from the commencement of the society to the last annual meeting, a period of 37 years, is 7536, and of these 3639 have been successsfully treated. Suffer your minds to dwell a moment upon this delightful fact—nearly 4000 human beings rescued from destruction, delivered from premature death, and restored

to their friends, and that, perhaps, when all hopes of their recovery were given up. But

——————" mercy is *twice* bless'd:
It blesseth him that *gives* and him that *takes*;"*

Only think, then, what a multitude of persons have been made glad by the beneficent labours of this institution. Such are the blessed effects with which it has pleased Divine Providence to crown the exertions of its members. Such is the happy result of perseverance in a good cause.

It is a laudable and most impressive custom, observed at the anniversary meetings of this society, for those who have been restored in the preceding year to march in solemn procession round the room in which the members and their friends are assembled. The effect of such a scene cannot be described; nor can it be fully conceived, without witnessing it, and sharing in the emotions it produces. The following passages from an address delivered on one of these occasions (26th April, 1809), and commemorating, at the same time, the lamented death of Dr. Hawes, will interest you highly, and may give

* Shakespeare.

you some little notion of what you would feel if you were present on such an occasion. When those who had been restored from apparent death during the year had left the room, Mr. R. H. Marten* rose, and said :—

" How awfully impressive was the solemn scene which we have just witnessed! I look around; and every tearful eye confesses that the heart was greatly interested in the sight of fellow-creatures of both sexes, of all ages and ranks, rescued from untimely death—and rescued by the blessing of God on our benevolent exertions." Alluding to their departed treasurer, he proceeds :

" The anniversary was the day of triumph to this conqueror for humanity. Other conquerors have had splendid triumphs decreed as rewards—but they dragged miserable captives at their chariot-wheels. Hawes shewed his victories, in fellow-creatures snatched from death! The loud plaudits of surrounding multitudes told, *of others*, what cities had been taken from the enemy,—or, if stormed, had been laid utterly waste, and how

* Of Plaistow, Essex.

many thousands had been slain! Hawes referred you to the number of cases, wherein, by your aid, the society had saved life! The solemn annual procession was part of his spoils, torn from the iron grasp of that greatest conqueror—Death! These were the triumphs which your kindness decreed to our departed friend; and no Roman general, returning from the most brilliant achievement, could be more deeply penetrated by the varied expression of his country's gratitude, than was our Hawes when you smiled approbation, when your applause encouraged, and when your liberality renewed his means to proceed in the good work!" Having mentioned the number of successful cases up to that time, which was more than *Three Thousand*, he goes on:

"That we may realize the more the importance of this number, let me request you to cast your eyes around on this respectable assembly. We are, I presume, about three hundred. Let fancy enlarge the extent of this spacious hall, until there shall be room for *ten* persons for each one now present, and be then filled as it now is. The sight of so many of our *fellow-creatures*

would, of *itself*, be pleasing; but how high the gratification to know, that, though once nearly dead, they were raised to life by exertions to which our society gave birth! The idea is still capable of farther expansion. Let the mind contemplate the extensive *connections* of the persons whose lives have been preserved—subjects, fathers, mothers, husbands, wives, children, perhaps the mother's only son, and 'she a widow,' the only prop of indigent and declining years, once dead, but now alive again!—and how many, among the multitude thus saved, have had, with prolonged life, and by your means, time and space afforded for repentance!

"The gentlemen in the management of the society know that no small proportion of the large number recorded on that tablet, had, as far as depended on themselves, dared to rush unbidden, into the awful presence of their Judge!—but who have lived, or who now live, to implore forgiveness of the crime with which, unrepented of, they were about to stand accused at the bar of God."*

* Report of Royal Humane Society, 1810.

It is, indeed, a most lamentable consideration, that so many objects of intended suicide, and especially, as it appears, among the female sex, have come under the notice of the society. It must, however, "afford some alleviation of pain to a feeling mind to be informed that *no instance* of a *second* attempt has occurred; which probably has resulted from the care exercised by the society in conveying to these objects, not only religious counsel, but also presenting them with bibles and other appropriate books."* This is a very interesting fact, and gives additional importance and value to the exertions of the Royal Humane Society.†

* Report, 1812.

† It is much to be wished that the Society and its methods of proceeding were more fully known in Russia; for, although there appears to be now at Petersburgh an institution on a similar plan, yet, according to Dr. Clarke, the celebrated traveller, "the horrid practice of burying persons alive" too often "takes place ... from the ignorance of the inhabitants. Instances of suspended animation, occasioned by the vapour of their stoves, or by accidents in water, are always considered lost cases; and the unhappy sufferer is immediately committed to the grave, without any attempt towards recovery. They send only for a police-officer, to note down the circumstances of the disaster; and, without the smallest effort towards restoring respiration, proceed in the ceremony of interment.

The example of the London Society has been followed in the establishment of a great number of similar societies in various parts of England, Scotland, Ireland, Wales, the British settlements in Asia and America, the United States of America, many of the principal towns on the continent of Europe, and even at Algiers in Barbary.

Such is a very brief sketch of the history of this admirable institution. To speak of it as it deserves, is utterly out of my power; I shall therefore leave the simple statement I have given to make its due impression on your hearts.

A poor woman in bathing, during our stay at Woronetz," says Dr. C. "fell beyond her depth. She... was taken out by some peasants before she had either sunk or lost her power of motion. When laid on the earth she groaned and moved; but... she became apparently lifeless; she was therefore immediately pronounced to be really dead. No endeavour on our part, accompanied by persuasion and by offers of money, could induce the spectators either to touch the body, or suffer any remedy to be attempted for her recovery. They seemed afraid to approach what they considered as a corpse; in vain we explained to them the process by which persons so circumstanced are restored to life in England. They stood at a distance, crossing themselves, and shaking their heads...The police-officer gave in his memorial, and her body was committed to the grave." Clarke's Travels, 4to. Vol. I. p. 209, &c.

The exertions of the Royal Humane Society were, at first, confined to cases of *drowning* only; but were, at length, happily extended to other cases of apparent death, whether produced by noxious vapours, hanging, lightning, apoplectic fit, or other sudden cause, and the success has been equal in proportion. There are many instances of this success recorded in the different Annual Reports of this Society. From among many others I select the following very remarkable one. As Mr. Crowfoot, of Beccles, was proceeding to Kessingland to visit a patient, he was told that the dead body of a serjeant Bubb was in a cart not far from him. On inquiry he learnt that the serjeant had sunk into a state of insensibility upon deck, the *day before*, and was said to have perished: he was brought ashore about ten o'clock the next morning, that is, the day on which Mr. C. heard of him; and left upon the beach for an hour, under the conviction that he was, as represented, a *lifeless corpse*. Mr. C. desired to examine the body, and perceiving a degree of warmth about the heart, he resolved to use his endeavours to restore life.

To the astonishment of all present, he providentially succeeded, after three hours unwearied application of the means usually employed by the London Institution. (*Report of the Society* for 1807.) This gratifying event took place on the 27th of November, 1805; and Mr. Crowfoot was deservedly rewarded with an honorary medal at the next anniversary, since but for his interference, the poor serjeant would have been buried before he was dead, and thus have been deprived of his only chance of recovery.

It is thought by many persons that apoplexies, fits, and sudden deaths are more frequent in England than in any other country. Whether this be the case, or not, we know that the number of those who die suddenly, or who appear to do so, and are buried in consequence of it, is alarmingly great; perhaps more so than formerly. It is very likely that, out of this number, not a few are every year committed to the grave before they are really dead. This is a melancholy supposition to indulge; but, for my own part, I have scarcely any doubt whatever of its truth. The above example shews how probable it is; and I

am acquainted with many others, both personally and by reading, which add strength to the opinion. It becomes, then, a very serious duty, when any sudden and unexpected death takes place, to determine whether the party be *actually dead*, or *not*, before any preparations are made for interment. If any of you should witness such an alarming occurrence as the sudden appearance of death, in your friends, or others, I hope you will not hastily give up the case for lost, whatever may have been the cause of the calamity; but call in medical aid as soon as possible, or apply the means recommended by the Humane Society. It may be, that life is not utterly extinguished, but only obscured for a time; and that your exertions may succeed in renewing it. At all events, if you should fail, you will have the satisfaction of knowing that nothing in your power has been neglected; and you will be saved from the painful apprehension (which may otherwise arise when it is too late) of having suffered a fellow-creature to be buried while yet there was hope of his life.

ADDRESS VIII.

DANGERS OF THE SEAS.—SHIPWRECKS; AND MEANS OF DELIVERANCE. — LIFE-BOATS. — LIEUT. BELL'S, AND CAPT. MANBY'S METHODS.—CORK-JACKET, MARINE SPENCERS, LIFE-PRESERVER. —ARABIAN AND CHINESE METHODS.

We will now direct our attention to accidents from water on a larger scale. How fatal soever our ponds and rivers often prove, the ocean is much more destructive to the life of human beings. It is not here, in solitary instances alone, that we must contemplate the work of death: not scores only, but hundreds, are sometimes swallowed up at once; and thousands are every year thus suddenly plunged into eternity. We, who live at a distance from the shore, and have never, perhaps, seen a shipwreck, or heard the piercing cries of the sinking sailors mingled with the roaring of the winds and waves, can

form no adequate conception of the horrors of such a scene. As the old ballad says,

> " You gentlemen of England,
> That live at home at ease,
> Ah! little do you think upon
> The dangers of the seas."

Indeed, if we were to think about them ever so much, we should have a much weaker impression of them, than a single opportunity of witnessing them would give us. In either case, I hope, we should learn to feel for the sufferers, and if we should happen to be present on any such occasion, I trust we should be glad to render them any assistance in our power.

The greatest dangers to which ships are exposed, are for the most part within sight of shore, or even within a short distance of it, where rocks and sand-banks are ready to receive the vessels, and upon which they are sometimes dashed to pieces by the tempest, or run aground so as not to be got off again in such a state as to be fit for sailing. In such a case, it is evident the crew must perish, unless there be some means of conveying them to shore; and this is very difficult, if not impossible. Common boats are often

of no use, being either unable, on account of the roughness of the sea, to reach the vessel, or in danger of being overset by the waves. For the same reaosn many have perished in their own boats, when, having loosened them from their vessel, they have attempted to reach the shore in them.

Such dangers as these gave rise to the invention of the life-boat, which was first constructed at South Shields, in the year 1789. Some gentlemen of that place, lamenting the frequent recurrence of shipwreck and its dangers, offered a premium of two guineas to the person who should produce the best model of a life-boat. The premium was awarded to Mr. Greathead, a ship-builder of Shields; and several boats have since been built upon his plan, not only there, but on many other parts of our coast.

In the month of September, that year, the ship Adventure, of Newcastle, was stranded on the Herd sand, on the south side of Tynemouth haven, in the midst of tremendous breakers, as the waves that are furiously broken by rocks or sand-banks are called. All the crew dropped from the rigging one by one, in the presence of thou-

sands of spectators, not one of whom could be prevailed upon, by any reward, to venture out to her assistance, in any boat or coble of the common construction. Had you been there, you would, no doubt, have wished, for a safer boat, in which persons might have ventured to the assistance of the drowning crew. To the honour of the gentlemen who resided at Shields, they did not content themselves with wishing, but immediately called a general meeting of the inhabitants, when a committee was appointed who offered a premium for the model of a boat which should appear best calculated to brave the dangers of the sea, especially of broken water. Many proposals were offered; but preference was given to that of Mr. Greathead, a ship-builder of Shields, who was immediately ordered by the committee to build a boat, partly on his own plan, and partly on that of Mr. Wouldhave, another candidate for the premium. The boat was launched on the 30th of January, 1790, and so well has it answered, even beyond expectation, in the most tremendous broken sea that since that time, not fewer than two hundred lives

have been saved, at the entrance of the river Tyne alone. Many boats have since been constructed upon this plan, and are kept at different parts of our coasts where shipwrecks most frequently happen. Great success has every where attended them. Foreign nations have also availed themselves of the invention: Mr. Greathead, about the year 1803, was honoured with an order for one of his boats, from Alexander, emperor of Russia.

You may gain some notion of the form of this boat, if you suppose a hollow bowl to be cut in two; and one of the parts set a swimming: you will find that is it is impossible to upset it, the two high and pointed ends always bringing it to its proper position after every trial. Or, perhaps, you may better understand its shape, by taking the fourth part of an orange, and separating the juicy part from the peel: the peel may represent the boat, and you will readily see how well it is calculated for floating, even in the roughest waters. Mr. Greathead puts cork into the sides of the boat. He has made several improvements in it since it was first invented; and

has adapted it better not only to general uses, but to particular purposes.

I ought, in justice, to inform you that, though Mr. Greathead had been the most noted and most successful builder of life-boats, the Shields boat is not the first of the kind that was constructed; for Mr. Lukin, a coach-maker of London, had taken out a patent for a life-boat several years before. And it appears, from a passage in Gillingwater's History of Lowestoft, that so early as the year 1771, a similar boat was built and tried in France. This boat was invented by M. Bernieres, director of the bridges and causeways, and was exhibited at Choisy before Louis XV. and the Dauphin. Though eight men were in the boat, and it was completely filled with water, it was so far from sinking, that the men rowed it about the river, without any danger whatever. Afterwards a mast was erected in the boat when filled with water, and to the top of the mast a rope was fastened, and drawn till the end of the mast touched the water; yet, as soon as the men who hauled her into this situation let go the rope, the boat and mast reco-

vered themselves perfectly in less than a second; "a convincing proof that the boat could neither be sunk nor overset, and that it afforded the greatest possible security in every way."* It does not appear, however, that this invention has been applied to any great extent in France; nor indeed is it certain whether it was ever carried farther than these experiments.

In comparing our own ingenuity with that of our neighbours, it is commonly said the French *invent*, but the English *improve*. Though I have long doubted the truth of this, as a characteris-

* Gillingwater's History of Lowestoft, 4to. p. 69. Since this address was written, the invention of a metallic life-boat, by Mr. Dodd, has been announced. It is said to be formed upon pneumatic and hydrostatic principles; that is, the properties both of air and of water were considered in its construction. It is made of malleable iron, lead, and tin, twenty feet long and six feet wide, and draws only ten inches of water with twenty-five persons. These boats possess valves which not only discharge all the water from them, without personal aid, but act occasionally as air-valves: they are ballasted with confined water taken in and put out at pleasure; are remarkably buoyant and lively in agitated water, will neither sink nor overset, and will yet serve all the ordinary purposes of ships boats, either for rowing or sailing. Such are the properties ascribed to this boat: part of them have been proved, by trial, to belong to it; and if it shall be found to possess them all, its inventor will have deserved well of his country.

tic distinction of the two nations, since there is much more invention in the one and improvement in the other than this comparison would seem to imply, yet that we stand high in the estimation of the world as a *nation of improvers*, is too well known to be denied. I hope we deserve the character, and I wish we may long retain it.

This thirst for improving is very general in its operation among us; and, accordingly, we find that life-boats have not been neglected. The meritorious exertions of Mr. Greathead, and the success which has followed them, have induced several other persons to turn their attention to the subject, and to attempt improvements in his plan. Among others, Mr. Christopher Wilson, of London, has constructed a boat, which he calls the neutral-built self-balanced boat, which from the trials that have been made with it, appears likely to answer in many respects as well as Mr. Greathead's, and in others better; for it has the advantage of being more readily put to sea, and more easily pulled through the broken water. Sir Thomas Clarges, also, of Sutton

upon Derwent, has contrived a life-boat which shews considerable ingenuity. The leading advantages of it are, that it is not only incapable of sinking, but that it cannot even fill or be waterlogged; that there is much cabin room; that it is well built for rowing, the oars not being on a curve, but nearly in a right line, and low to the water; and that it is furnished with a very powerful rudder which reaches some inches below the keel, but will haul up level with it when going into very shallow water, and then let down again. I should like to give you a description of this boat, but have not room for it: you may read it at your leisure in a very useful monthly publication, called Nicholson's Journal, No. 96, which I will lend to you. Mr. Wilson's boat is described in the 92d number of the same work.

But it may happen that a ship may be stranded near a part of the coast where there is no life-boat, or if there be one, it may be impossible from want of hands, or other causes, to get it off to the assistance of the crew. Here it is evident that if they cannot come off in their own boats,

they are in a very distressing state; and they may fire their signal guns in vain. In such a situation, the method invented by Lieut. Bell, about the year 1791, of throwing a line on shore, by means of a shell, from a mortar on board, might be resorted to. The general principles of this method will be made plain to you, by the following account of an experiment made at Woolwich on the 29th of August in that year. From a boat moored about 250 yards from the shore, the shell was thrown 150 yards on shore with the rope attached to it. The shell was of cast iron, filled with lead; its diameter was 8 inches, and its weight 75 pounds. The rope in the trial was a deep sea line, of which 160 yards weighed 18 lbs. By means of the line, kept fast on shore by the ball, Mr. Bell and another man worked themselves on shore upon his raft of casks, which is formed by lashing five empty casks together, one in the centre, one at each end, and one at each side, of the central cask. He varied the experiment several times, with different sizes of rope and of ball; and sometimes used a grapnel instead of the latter, but it did not retain its

hold in the ground so well, though among rocks, or on a rough shore, it may be useful. To make the raft more complete, he directs that a seaman's chest be fixed upon the top of the casks, having parts of its ends or sides cut out, in order to let out such water as may be thrown into it by the surf. He declares himself ready to undertake to land with such a float upon a lee shore any where upon the coast, when it might be deemed unsafe for a boat to make good its landing. The peculiar construction of the piece of ordnance which he recommends for this purpose to be used on board of ships, is such that the chamber is to contain one pound of powder, and the bore to admit a leaden ball of sixty pounds or upwards, which he supposes will carry a deep sea line between three and four hundred yards distance. Such a piece of ordnance with suitable apparatus, he thinks should be kept on board every ship; and he advises that it be always brought upon deck, and kept there ready for use, when within sight of land, and particularly in stormy weather.

Another method, *directly the reverse of this*,

was contrived by Captain Manby about five years ago, and has since been adopted by him on various occasions, and with the most gratifying success. It consists in throwing a rope *from the shore to the vessel in distress*, by means of which the crew may be drawn to the shore, even when the broken water prevents a boat from pulling up to the ship's aid, though within ten or twenty yards. The circumstance which gave rise to this method, and the happy result of it, are so well related by the benevolent captain himself, in the preface to a book he has just now published on the subject, that I shall copy the passage for your information.

"The dreadful events," he observes, "of the 18th of February, 1807, when his Majesty's gun-brig Snipe was driven on shore near the haven's mouth at Yarmouth, first made an impression on my mind, which has never been effaced. At the close of that melancholy scene, after several hours of fruitless attempt to save the crew, upwards of sixty persons were lost, though not more than fifty yards from the shore, and this wholly owing to the impossibility of conveying a

rope to their assistance. At that crisis a ray of hope beamed upon me, and I resolved immediately to devote my mind to the discovery of some means for affording relief in cases of similar distress and difficulty. It is a matter of no small consolation, when I reflect that my efforts were crowned with the happiest success, and have been already instrumental to the preservation of *ninety* souls from a watery grave, of which seventy-seven were my countrymen, and thirteen unfortunate Hollanders." In another place he observes that only *three*, out of the number of lives he has attempted to save, have been lost; and of these, two were incapable of exertion from insensibility, and the third unhappy man lost his life by his own temerity.

Captain Manby has paid great attention to the manner of firing the shot from the mortar, as well as to the shape and fixing of the balls themselves. and has made many useful improvements in both these respects. The object in firing is to throw the shot beyond the vessel, so that the rope may lie across it, and give the poor mariners that assistance they so much need. The captain

has contrived a barbed shot for the purpose of catching the rigging and securing the rope: he has also invented a cot to slide on a rope, to convey females and infirm persons from the wreck to the shore; and he has, moreover, suggested a plan for discharging guns without the aid of fire, by a chemical composition.

But tempests and shipwrecks often happen in the night, when darkness may prevent the vessel from being seen on shore, and the crew may not have it in their power to point out their exact position by the flash of their signal guns, or to discern the rope if it should be thrown across the ship: circumstances which must heighten the danger and the horror of a situation exceedingly awful at the best. Against these difficulties, Captain Manby has provided, by a contrivance as ingenious in itself, as it is likely to be effectual in its consequences. He first employs a hollow ball made to the size of the piece, and composed of layers of pasted cartridge paper to the thickness of half an inch: this ball, being filled with about fifty luminous balls of star composition and a sufficient quantity of gunpowder to

burst the ball and inflame the stars, is then projected into the air towards the supposed place of the wrecked or stranded vessel. The stars, as they fall, illuminate the sea to a great distance round, and continue their splendour a sufficient length of time to allow the vessel to be seen. Its direction is determined in an instant by means of two upright sticks painted white and fixed in a plank, by the side of which the mortar is to be placed, and will thus be pointed exactly toward the vessel. The shell affixed to the rope differs from that used in the day time by having four holes in it to receive a like number of fuses, and by being filled with the fiercest and most glaring composition, which, when inflamed by the discharge of the piece, forms a brilliant tract for the rope, which is thus rendered visible, to the joy and advantage of those who so greatly need its aid.

There are many other excellent instructions and remarks in Captain Manby's book;* but I

* Its title is "*An Essay on the Preservation of Shipwrecked Persons;* with a descriptive account of the Apparatus, and the manner of applying it, as adopted successfully by *G. W. Manby*, Esq." &c. Sold by *Longman*,

have not room to notice them: and, as I have bought the volume for your perusal, you may read them at your leisure.

Before I close this address, I must describe to you a few other inventions designed for the purpose of preventing persons from sinking in water, when they accidentally fall into it.

The *Cork Jacket* is formed by sewing thin flat pieces, or shavings, of cork in a waistcoat or jacket to fit close to the body, to which it is secured by buttons or strings.

The *Marine Spencer*, invented by a gentleman whose name is Spencer, is made in the form of a girdle, of a proper diameter to fit the body, and six inches broad, composed of about 500 old

&c. &c. It appears right to mention, what I observed since the above was written, that Mr. C. *Humphries*, of Morton Hampstead, near Exeter, has laid claim to the honour of several of the inventions practised by Capt. Manby, especially the method of throwing a line with a grapple from the shore to a ship in distress, and that of expeditiously landing shipwrecked seamen; an account of which he affirms was communicated by him to the Trinity House, London, in December, 1799. See Mr. H's letter in the Monthly Magazine, N°. 230, p. 5. At all events, whatever quantity of invention may be fairly adjudged to the respective claimants, much praise is due to Captain Manby for his exertions, and every friend to humanity will rejoice in their success.

tavern corks strung upon a strong twine well lashed together with lay-cord, covered with canvas, and painted in oil so as to make it water-proof. Two tapes or cords, about two feet long, are fastened to the back of the girdle, with loops at the ends. Another tape or cord of the same length has a few corks strung to the middle of it, is covered with canvas and painted. A pin of hard wood, three inches long and half an inch in diameter, is fastened to the front of the girdle by a tape or cord about three inches long. To use the spencer it should be slidden from the feet close up under the arms, the tapes or cords are to be brought, one over each shoulder, and fastened by the loops to the pin: the tape or cord between the legs is to be fastened to the other pin. A person thus equipped, though unacquainted with swimming, may safely trust himself to the waves; for he will float head and shoulders above water in any storm, and, by paddling with his hands, may easily gain the shore. Such a spencer may also be made of cork-shavings at a very trivial expence.*

* Report of R. H. Society.

A canvas bag would serve very well to hold the corks, or cork-shavings, and, if of greater breadth than the above, might answer many good purposes, if kept on ship-board, although it be not water-proof. It has been suggested that pieces of cork might be worked into the ordinary dress of sailors, especially about the shoulders and neck; which, as it would give them an opportunity of recovering themselves, and using their own powers, when they happened to fall into the water, might be the means of saving many valuable lives.*

The *Life-Preserver* is a most admirable invention by Mr. Daniell a surgeon of Wapping, near London. The body of the machine, which is double throughout, is made of pliable water-proof leather; the head of the wearer is to pass between two straps which rest upon the shoulders, and his arms are to pass through the spaces on the outside of the straps, so as to allow the machine under them to encircle the body, like a large hollow belt; on the lower part of the back of it is a strap which is to pass between the

* See Monthly Mag. for July, 1812.

the thighs of the wearer, and buckle in front. The machine, thus fixed, is to be filled with air by the mouth of the wearer, who is to continue blowing through a stop-cock in the front of the machine till it is fully inflated; the air is then confined by turning the cock.

Soon after Mr. Daniel had completed his invention, he made a public exhibition of it in the river Thames. On the 27th of July, 1806, he went, with several of his friends, in a barge and other boats, accompanied with a band of music, to conduct and witness a very gratifying spectacle: several men clad in linen dresses and red leather helmet caps, and wearing the preservers, appeared in the river, moving about at pleasure; they appeared to float freely, and to rest breast-high in the water with perfect ease and freedom. Multitudes of spectators crowded the three bridges and both sides of the river, to witness this curious and pleasing exhibition.*

The machine, when properly made and well varnished, resembles a broad belt or circular girdle, composed of two folds of pliable leather

* See the Reports for 1807 and 1812.

attached together, and perfectly impervious to water. When it is well filled with air from the lungs, it is capable of preventing *four persons* from sinking under water, as the following extract will testify: it is from a letter addressed to Mr. Daniel, by John Dickenson, Esq. of Norwich. He was sailing towards Norwich in a pleasure-boat, with two ladies and another gentleman. They had taken the precaution of procuring one of the life-preservers, which was on board. "On tacking," says Mr. D. "to enter Norwich river, at the extremity of a broad water, two miles over, known by the name of Braydon, a sudden gust overset the boat, precipitating myself, companion, and two ladies, into as agitated a water as I have ever seen at sea (except in hard blowing weather). You may judge my situation at such a juncture. Your machine was jokingly filled as we came along, to which I ascribe (though very unexpected by us) our preservation. The gentleman, whose name is Goring, was inexpert at swimming, and with difficulty kept himself up, till I reached him; and then directing him to lay hold of the collar of

my coat, over which the machine was fixed, I proceeded towards the ladies, whose clothes kept them buoyant, but in a state of fainting when I reached them: then taking one of the ladies under each arm, with Mr. Goring hanging from the collar of the coat, the violence of the wind drifted us on shore upon Burgh Marshes, where the boat had already been thrown, with what belonged to her. We got the assistance of some countrymen directly, (after taking refreshment at a marsh-farmer's house, where we procured some dry clothing for the ladies, who were now pretty well recovered) and by their endeavours put the boat in sailing trim, and prosecuted our voyage to Norwich, which we effected by eleven o'clock that night."* From this remarkable instance, and several others which have been recorded, we have reason to assert that Mr. Daniel's life-preserver is well entitled to the name it has received. In the annexed plate I have given you a representation of the interesting scene, and underneath, a separate view of the preserver itself.

* Transactions of the Society of Arts for 1807. Nicholson's Journal, Vol. XX. p. 283.

It is worthy of notice that a contrivance, on a similar principle, has been in use among the Arabs from the earliest ages. Taking the skin of a goat, they sew up very completely its different openings, except the skin of one of the legs, which they use as a pipe or tube to blow up the rest of the skin, and then twist and hold it very tight to prevent the escape of the air. By means of this inflated skin, they can keep themselves floating in the water as long as they please; and, by paddling with their hands and feet, can transport themselves to considerable distances.*

In *China*, where millions of persons live almost wholly on board vessels on the canals, the children are preserved from drowning by a very droll method. An empty gourd, or calabash, well corked, is tied upon the back of each child, who thus paces the decks of the vessels in security, knowing that, if he should happen to fall overboard, he would be prevented from sinking, or that, if he should be under water for a moment, the shell at his back would soon buoy him

* Report of R. H. Society for 1812, p. 107. Also several of the preceding Reports.

up again. Would it not amuse you to see the little fellows running about the vessels, with those artificial humps upon their backs?

ADDRESS IX.

ACCIDENTS AT PLAY.—"DANGEROUS SPORTS."—FALLS.—COL. CRICHTON'S BED AND FRAME FOR REMOVING WOUNDED PERSONS.—DOGS.—WOUNDS.—BURNS AND SCALDS.—GUNPOWDER AND FIRE-ARMS.—SWALLOWING BONES, &c. NEVER CONCEAL AN ACCIDENT.

As we have been so long upon the water, I suppose you will be glad to get fairly and safely upon land again. I shall be happy to attend and remain with you there; for it is an element much more to my liking, as a place to live upon, than the boisterous and deceitful ocean. You must not imagine, however, that when you are safely landed, you are totally exempt from danger. You are not so weak as to think so, are you? Very well. I am glad of it; and hope

you will excuse me for giving you an unnecessary caution: it is an error into which I am not often very likely to fall.

Let us proceed to the principal accidents which yet remain to be noticed. Some of these may happen to us so suddenly and unexpectedly that we cannot by any means provide against them; while there are others which we may avoid if we will. Between these you will easily distinguish, as we go on; and I hope you will derive this advantage from your present attention to them, that in future life you will be as careful to abstain from dangerous practices when they are improper and unnecessary, as you would be anxious to obtain help should any injury befal you.

Among the sports and exercises which daily yield you so much delight, there are *some* which are so obviously dangerous, and are so often attended with fatal effects, that to engage in them is to expose yourselves willingly to danger. These had better be given up entirely: there will be plenty remaining to afford you abundance of amusement without endangering your

safety or your health. Old Millson* has very well taught you to distinguish between the safe and the dangerous sports. He has cautioned you against the *practice* of *jumping from high places;* which, though often done without any idea of danger, is sometimes attended with the breaking of a leg; and even when no immediate injury is perceived, it often lays the foundation of dreadful pains and diseases in future life. He cautions you also against

Weighing cheese and butter, as it is called, which is done by two boys entwisting the arms together back to back, and thus swaying each other: this he calls a highly dangerous practice; and states an instance in which, in consequence of this sport, the back-bone was actually broken, and the poor boy made a cripple for life.

There is nothing in the whole catalogue of sports, which I look upon with more dislike than the "ruffian-like practice," as old Millson calls it, adopted by some boys, of *throwing stones* at each other. You have frequently heard me express this dislike, and I have also

* See the note on p. 78.

stated to you various instances in which it has been attended with very serious consequences. To your credit I am happy to add that my remonstrances on this head have not been made in vain; and I hope a practice so disgraceful will never be resumed amongst you.

Bird's-nesting is often as dangerous as it is cruel. I should be happy to dissuade you from it on both these accounts. Of its danger, old Millson will furnish us with a striking example. Let it not be recommended to you in vain.

"Sometimes," he says, "I received from my misconduct that punishment which I merited. Thus one evening, just before dark, I had climbed up a very high tree to take a bird's nest, and was trying to get from the branch I was on, to the one on which the nest was built, when my foot slipped, and I fell, but not far; for my coat skirts entangling in the boughs, my fall was broken, and I, at the same time catching hold of another bough with my hands, hung in this manner, fearing that my clothes would give way, and that not having power enough to support myself with my hands, I must fall and break my neck.

" At length I was fortunate enough to get my leg across another bough, but could not disentangle my clothes; I now called aloud, but could make no one hear, and was therefore obliged to pass the whole night in this dreadful state; oftentimes feeling such pain from being so long in one posture, as to be ready almost to lose my hold, and trust to the consequences: and I should certainly have fallen through fatigue, if I had not, about the middle of the night, got my back also to bear a little on another branch.

" Think what a situation I had put myself in by indulging my cruel disposition; think how dreadful a night I passed, dreading every moment that my clothes would give way, or the branch break, and that I should fall to the ground, and be bruised to atoms.

" At last morning came, and some labouring men passing near the tree, I cried aloud: they looked about, but, not seeing me, they walked on. I had now given myself up for lost, but in about half an hour, some more persons passing by, I repeated my cries; and was fortunately discovered by them, and released from my shocking situation.

"But think of the perversenes nd thoughtlessness which so ruinously influenced all my actions. Within a week I climbed a tree again, and enticed my brother to follow me. We had nearly gotten to the top of the tree, and my brother was on a branch on which I was going to step, when he prayed me to desist; but such was my wicked obstinacy, that to ask me not to do a thing was sure to inspire me with an inclination to do it directly. So it was in this case, I stepped on to the branch, which broke directly, and we both fell.

"Oh! what did I feel at the moment of falling: buffeted about from one branch to another, I at last reached the ground with such violence that I lost my senses. When I recovered, I found myself surrounded by people, who had been rendering me assistance: but to my poor brother their kindness was fruitless—he was killed outright.

"I was now carried home; one of my arms and one of my legs were broken; and I had the dreadful reflection fixed in my mind that by my

obstinacy I had occasioned the death of my brother."*

Now these are dangers and troubles which you may avoid if you please. It is no more *necessary* for you to climb up lofty trees, or to throw stones at each other, or to jump from high places, or to run the risk of having your back broken, than it is to thrust your fingers into the fire, or to knock your head against a wall; and if you do either of these things by *choice* when you have no occasion for it, and after you have received such a warning as this, you will in great measure deserve all the evil consequences which it may bring upon you. May this example effectually deter you from an imitation of it.

After all our care, however, and it is our duty to be careful, we may be overtaken by some calamity or another. Amongst the accidents to which we may be exposed, none are more common, and frequently none more serious in their consequences, than those occa-

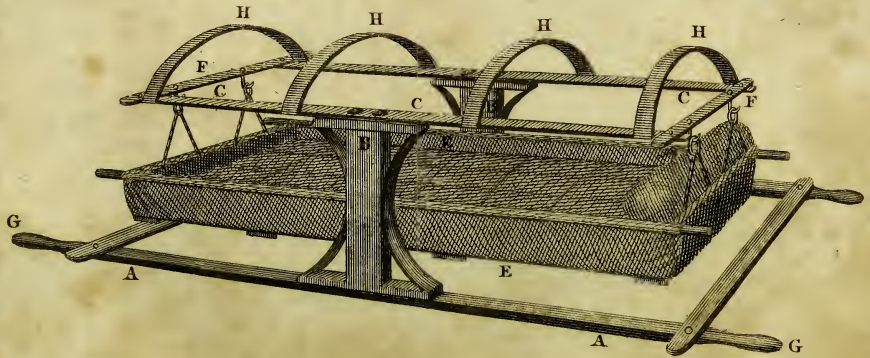
* Parkinson's Dangerous Sports, p. 121—5.

sioned by *Falls*. But these are often much aggravated by the first attempts to correct them; thus, a fall which has only broken a man's leg, may be followed by a very bad wound in the flesh, through the awkwardness of the attendants in carrying him home. Of this the following case presents a remarkable instance: A. B. fell from a scaffold, and broke his right leg without any wound in the flesh or the skin; his companions were carrying him home in a chair, which gave him *great pain;* a gentleman passing by, observed to them that the pain arose from the unsteady position of the leg, which kept *dangling* about. As the men grew tired, they stopped to rest themselves, and fortunately opposite to a house where some women were ironing; the gentleman immediately begged the use of their ironing-board and a mattrass, on which the poor fellow was conveyed, in comparative ease, to his home. The stairs to his bed-room were too small to admit this conveyance; he was therefore carried by two men, and immediately his pains returned most dreadfully. When the surgeon saw him, instead of the *simple fracture*,

he found one end of the broken bone had been forced through the flesh and skin by the mode adopted in carrying him up stairs. In the first instance, three weeks would have cured him; but in the latter case it required as many months, besides much impairing his health, and rendering his leg crooked after all. Had his friends brought his bed down stairs, all this would have been prevented; and perhaps the most proper place for a poor man to be kept in, who is to be a prisoner for three weeks, is the ground floor, as here his friends can more easily visit and assist him.

If accidents happen in places remote from a village or a house, it may be thought means cannot be found to render assistance, even though some persons may be by to apply them: those cases are very few, if the eye-witnesses will be cool and collected, as the following case may help to shew. C. D. was riding in the open fields in Teversham parish; the report of a gun frightened his horse; he was thrown, and had his thigh broken. A surgeon was sent for, who was met providentially in Barnwell. In

Lieut.t Col. Crichton's Bed, for the easy Conveyance of Sick or Wounded Persons.



such a situation, you would not expect the bandages and splints necessary to bind up the thigh. Some stonepickers were standing round the poor fellow; and the surgeon ordered them to look among the heaps they had collected for two of the *blade-bones* of a sheep, which they readily found. Having wiped them, and applied his handkerchief round the thigh which he had set, he placed the smooth sides on the outer and inner side of the fractured bone, and by means of his neckcloth and the boy's garter, he firmly bound up the limb. A cart was going by, on the road at some distance, which was hailed, and immediately brought to the spot; some haulm found in the field was put in, by way of a bed, on which the person was placed, and was thus brought to Addenbrooke's hospital in Cambridge, where he remained three weeks, and was cured. On leaving the hospital, he returned thanks to the governors, in the very neckcloth and blade-bones he had been at first bound up with.

A most ingenious contrivance has been made by Col. Crichton, of the Royal Edinburgh Vo-

lunteers, for the easy conveyance of sick or wounded persons. It consists of a cheap bed and an elastic frame, as represented in Plate VI. and described in the note* below. It may be either carried by men, or removed to any distance on a cart or waggon. As a proof of its utility, the inventor relates the following instances. "A person was brought in it, with a compound fracture in the thigh-bone, from the West Highlands to Edinburgh, a distance of 74

* "The lower frame A A is made of ash or elm, seven feet long, and five feet four inches broad. B B, Two strong wooden pillars, bound on the sides by two circular pieces of iron, for supporting the elastic frame. C C C, The elastic frame, made of the best ash, supported by the wooden pillars, and semicircular pieces of iron. E E E, The frame or cot, containing a mattrass or paliasse, stuffed with straw.—Two or three hammocks may be suspended, and will answer as well as the cot. F F, Rings and iron hooks by which the cot, bed, and mattrass are supported. G G G, Four handles projecting from the under frame, one foot three inches long each, by which the whole may be carried by four men. H H H H, Four semicircular hoops, over which a cover can be thrown, to protect the patient from the weather. The under frame and pillars should be made of ash or elm, well seasoned. The elastic, or upper frame, should be made of ash, remarkably clean and well seasoned, thick in the middle, where it is supported, and tapering towards the ends. The total expence of the whole, including the iron-work, should not exceed four pounds ten shillings."

miles, in two days. A gentleman, with an attack of the gout both in his hands and feet, was removed from Edinburgh to the north of England, above 140 miles, in three days. In both these instances, and a great many more, the bed and frame were suspended to the carriage of a post-chaise, and, with a servant sitting in front, travelled post. Some hundreds of examples can be adduced of the removal of patients by its means, when fixed on a cart or waggon, and in many of these the patients were in a state of the most severe bodily distress and debility. In all these removals the patients have borne testimony to their enduring no additional pain or inconvenience from the motion of the machine; all of them, even in the most severe cases, declaring that they were alike insensible of bodily fatigue, or of the least increase of pain from the mode of conveyance." You may find the whole account in Tilloch's Philosophical Magazine, No. 116, p. 289, &c. It appears that the faculty at Edinburgh have most highly approved of this machine. It might be exceedingly useful in the army; and if one

were kept at every hospital, many an hour's pain might be saved to poor creatures who are now removed in uneasy vehicles to these benevolent asylums.

Dogs.—Dogs are sometimes very snappish and ill-natured, growling at every one who passes, and ready to bite all they can reach; but this is no reason why you should do every thing in your power to provoke them: one would think your ears were formed to relish a very peculiar kind of music, if you can be so delighted with the horrid snarlings of an angry dog—inferior only, if inferior, to the braying of an ass. It is a very foolish practice, to say the least of it; and is sometimes productive of very dreadful effects. The following instance occurred, not many years since, in St. James's Park. A young gentleman passing a dog, slightly touched it with a switch he carried in his hand, upon which the ferocious animal turned, and seized him by the belly; and, in spite of the exertions of those around him, he continued his hold until the bowels of the youth appeared at the wound. I need

scarcely say, the poor youth died within a few hours.*

If a dog should threaten to attack you without provocation, it will not be wise for you to run hastily away from him, lest he should be upon your heels without ceremony; you should rather face him in a firm manner, looking earnestly at him, and with an undaunted voice bidding him be quiet or lie down. This will be the most likely way of cooling his courage, and preventing him from doing you any harm.

"Always," says old Millson "be careful to avoid any dog which you see running along, looking heavy and lowering, seemingly inattentive to every thing, his eyes looking red and watery, and his tail hanging between his legs, *lest he should be mad.* If at any time you should be bitten by a dog, though ever so slight-

* Dangerous Sports, p. 20. I do not quote so often from Mr. Parkinson's book for the sake of preventing, but of increasing, its circulation. If any of my readers should be induced to peruse it, they will wonder, with me, that a book so well calculated to instruct the rising generation in many important particulars respecting their health and amusements, should have been *eight years* in passing to a second edition.

ly, endeavour to ascertain whose dog it is, and immediately apprise your parents of the circumstance, since they will be the fittest to carry on the inquiry further; and, even if the dog should have been mad," if the matter be taken in time, can prevent those fatal consequences which will probably follow the neglect of it.

But dogs, as well as men, have sometimes false characters given them, which not only occasion unnecessary alarm, but expose the poor creatures to the certainty of death, when they do not deserve it. No proverb is more common and more just than, "*give a dog an ill name, and then hang him.*" Indeed, you may as well do the one as the other; for if once his ill name get abroad with him, his doom is fixed, and death must follow. It is not, however, every dog that is called mad, that is so in reality. Perhaps there are but few cases, in comparison, in which the animal is really mad. It must be remembered that dogs always have a disposition to bite when labouring under certain disorders; yet *this* bite has no other evil effects than the wound the dog makes, which is not poisonous. If the

wound is made by a rabid animal, the part must immediately be burnt and destroyed: a hot iron is as good an application as can be devised. Though we have no internal remedy, of which we can certainly say it is of any real use, yet the taking of some medicine of reputed character will amuse the patient's mind, and prevent the evil consequences of mental anxiety and alarm. Even when there is no real danger in the bite, an application of this kind is sometimes necessary for the same purpose, and may be made use of with equal advantage. A poor deaf and dumb boy at Duxford, in this county, met a dog that had bitten a number of cattle which had died; the dog bit him through both arms, so that his teeth met. Mr. T——, a surgeon, was passing about the time, and was consulted. He gave the boy some pills, which he directed him to take regularly night and morning. He did so; is now very well; and ascribes his cure to the pills he had taken, though they were made of nothing in the world but crumbs of bread worked up with a little pepper sprinkled upon them, to disguise and alter the taste. As the

dog was supposed, both by himself and his neighbours, to be mad, there is no doubt he would have suffered very much in his mind, but for this expedient: that the dog was not really mad, it is scarcely necessary to inform you, for if it had been so, it is not likely that the bread pills would have cured the poor fellow that had been bitten.

Wounds.—Wounds are so common, from the simple scratch that only gives pain, to the serious cut which bleeds considerably, that I must say something about them. I must first impress it upon your minds, as a very important fact, that the great Being who formed that wonderful machine, the human body, has given to it the power, in certain circumstances, of restoring itself when under disease. This we see every day, especially in broken limbs, where the surgeon only places the bones in their natural order, and keeps them there by his splints and bandages; these, in themselves, have no healing quality, and even ointments in general have little use, except to keep the cloths, &c. from sticking to a wound. In the cure of a wound, however large, the sole

object is to stop the bleeding, and remove any dirt or extraneous matter, and then to bring the sides of the wounds as much in contact as possible by sticking-plaster, or a bandage, or a needle. If, after this, the wounded part be laid in an easy posture, it may be fairly left with every probability of success. How often do you cut your finger? You tie your handkerchief around it; and find it is healed when you take off the bandage to wash your hand. This is called *healing by the first intention.* The same principle operates in larger wounds, only it takes more time to produce the desired effect.

In the case of wounds attended with large bleedings, the knowledge of the use of the *Tourniquet** is highly beneficial. It is not necessary to carry one of these instruments in one's pocket, since a substitute for it may be found in almost every situation, as the following case will shew. C. D. was cut in the arm, by one of his angry

* A surgical instrument, used to stop bleeding in large wounds, by means of pressure on the artery. Those who heard this address, it is hoped, will not soon forget the explanation which Mr. Thackeray gave them, of the construction and use of this instrument, as well as of the contrivance which proved so useful in the case of C. D.

companions who was reaping with him, and it was thought he would have bled to death. A surgeon was sent for; and, finding what had happened, posted home for a tourniquet. Another surgeon accidentally going by, and seeing him still bleeding, took the poor fellow's garter, and applied it just above the wound; and, in the direction of the artery, he applied to it a piece of paper several times doubled, which he fastened on with the garter; finding he had not, by this means, compressed the artery enough, he took a piece of stick, and inserting it under the garter at some distance from the doubled paper, he twisted the garter till he obtained the requisite tightness, when the pressure of the paper upon the artery caused the bleeding to cease. Half an hour after this, the first surgeon returned, and wondered the thought had not struck *him!* In ten minutes the poor fellow would have expired from loss of blood, and the surgeon would have seen that his ignorance was the cause of it.

By way of caution, let me advise you never to leave your knives open with their edges upwards, lest you or your schoolfellows should sit

upon them, or lay your hands upon the blade, and cut yourselves severely. It is also a dangerous practice to shut your penknives by pressing the blade against the thigh: many persons have cut themselves in this manner. The danger is greatest on the inside of the thigh; for *there* runs a great artery which, if pierced, would let out such a flow of blood, as would occasion death if not speedily stopped.

Burns and Scalds.—These, you know, are of very frequent occurrence; and when they happen, the application of cold in any shape is proper. Cold water, as always at hand, may be immediately applied; but cold vinegar is better, and has on many occasions been found so very useful, that it is adopted in most of the great breweries, where these accidents are very frequent. The blister is then to be opened, and its contents let out; but the skin is to be left on, as the best defence of the sore beneath. In the glass manufactories at Edinburgh, a mixture of lime-water and linseed oil, in equal quantities, is kept constantly at hand to be ready in case of

accidents. The part burnt is covered with rags kept continually moistened with the mixture.

Gunpowder.—Boys should never play with gunpowder, for it is a most dangerous article in the hands of those who are ignorant of its qualities, or too careless to attend to them. Many very serious accidents have been occasioned by it: eyes have been injured, and sometimes persons have been rendered blind by it; houses have been set on fire, and even life has been destroyed, by the careless or wanton employment of this destructive substance. When you see it has done mischief to any one, you should have the part well washed with warm water: this will prevent further injury, by decomposing the gunpowder, which is only active in its combined form. Perhaps you do not quite understand this: I will explain it. To *decompose* is to *take to pieces*, to *un-compose;* and is employed by chemists when they separate any compound substance into the particular substances of which it is formed. Now gunpowder is a substance of this kind; you know, perhaps, that it is com-

posed of three principal ingredients, nitre, sulphur, and charcoal. When warm water, then, is applied to the wounded part in the manner above directed, it destroys the composition of the gunpowder, which has forced itself into the flesh; and by separating its ingredients, takes away its power of doing any further mischief in the wounded part.

Fire-Arms.—Now I have mentioned gunpowder, it may be highly useful to caution you against the improper use of fire-arms. These, in the hands of persons who have not known how to manage them, or have not been aware of their danger, have been productive of the most dreadful effects. Children and young persons have taken up fire-arms to play with; and not knowing that they were loaded, or not supposing they would go off, have presented them jokingly to their brothers or sisters or other friends, and, on pulling the trigger, or perhaps knocking something against it accidentally, have shot them dead in a moment! Many instances of this kind are upon record: I have seen accounts of several, and you have no doubt been told of such

cases yourselves. What an awful lesson do these facts hold out, to those who are in the habit of using such instruments of death! and how cautious ought it to render them, either in unloading their pieces when they return home, or in placing them out of the reach of children and others who may do so much mischief with them! Neither are those who are well skilled in the use of these deadly weapons, altogether exempt from the danger attending them. We often hear of sportsmen in the field very seriously injuring themselves, or their companions, and sometimes even causing their death, by the accidental discharge of their guns. I remember having read various accounts of such calamitous events; but having laid aside the newspapers in which they were recorded, not then thinking of writing such a book as this, I do not know where to refer to them. The following account I have met with, however, since I began to write; and as the unfortunate subject of it wished it to be made as public as possible, for the benefit of others, I shall lay it before you with the hope that it wil not be preserved in vain. In the Monthly Ma-

gazine for August, 1810, is mentioned the death of Mr. Robert Foot, jun. at Ludwell, in Wiltshire, aged 19. Four days before his death, it is said, he was going out with his loaded gun; but stopping to converse with a friend, he incautiously rested on the muzzle of the gun, which went off at half-cock, and nearly the whole charge of shot passed through his left hand, grazed his side, and lodged in his shoulder. He had just quitted an affectionate mother, in the full glow of health and youthful spirits; he returned to her maimed and streaming with blood. Having received his death-wound, he bore his sufferings with great fortitude, and hoped others would receive warning from his example.

Some of you, no doubt, recollect that most affecting tale which is related by Sir Richard Steele in the Tatler, No. 82. A gentleman on his wedding-day was joking with his bride; and taking up one of his pistols which lay upon the table, and which he knew he had unloaded the night before, he presented it to her, threatening, in a strain of fond raillery, to be revenged upon her for all the trouble she had occasioned him

during his courtship. "Give fire," said she, laughing. He did so and shot her dead. The pistols had been charged by the servant, unknown to his master; who, calling him, and inquiring into the fact, immediately shot him with the other; and then put an end to his own life by falling upon his sword. Thus perished three persons, through a single mistake, more fatal indeed in its effects, but not more extraordinary in its own nature, than many which take place every day. If caution is needful to us in the common concerns of life, it is doubly so when we have any thing to do with gun-powder and fire-arms.

Swallowing bones, &c.—Persons who eat without chewing their food, as many boys are apt to do, sometimes have bones or meat stick in their throat. If within sight, they should be removed; otherwise they may be left alone,—that is, if they do not stop up the throat so as to prevent breathing, for the saliva or spittle has a solvent power, by which in time they will be softened, and will then pass into the stomach. Some women have a foolish custom of putting

pins into their mouths, which are often swallowed. If they pass the throat without injury, they may be left alone ; for in a little time nature will cover them with a thick mucus or slime, and they will generally pass away without any injury to the bowels. The same may be said of coins, nails, marbles, and other substances that are occasionally swallowed by children, unless they be of a poisonous nature ; and then the most earnest attention must be given to them immediately, and a medical man called in without delay. I would not, however, recommend to you the practice or habit of swallowing even plum-stones or cherry-stones, since though in general they may pass through the body, yet they may happen to be detained there, and produce much injury. You will, I trust, be the more cautious on this head, when you are informed that the swallowing of a plum-stone has been known to occasion death.

In concluding this address, I would impress upon your minds one most important maxim, and that is—*Whenever you meet with an accident, be sure you do not conceal it from your friends ;*

but inform them of it, without disguise, as soon as possible. I have been told of cases in which accidents, from being kept secret, have been followed by the most serious consequences, when by a timely disclosure, and a proper attention, these evils might have been in great measure, if not entirely, prevented.

ADDRESS X.

ACCIDENTS IN TRAVELLING, AND CAUTIONS.—INTENSE COLD.—SUDDEN CHANGES FROM COLD TO HOT, AND THE CONTRARY.—"CATCHING COLD."—THUNDER STORMS.—FAINTING.—CAUTION AGAINST INDULGING EXTREME SENSIBILITY.—CONCLUSION.

In our progress through the "chapter of accidents," it would be improper to omit noting those which happen in travelling—upon land, I mean; for the principal dangers of voyages by sea have been attended to in a former address. We are so fond of moving from place to place,

and have indeed so many occasions to do so, that it is worth while to consider how we may best provide for the accommodation and safety of our journey.

When you are going to ride on horseback, it will be right, before you mount, to examine carefully the trappings of your horse, to see whether the bridle, girths, and stirrups, be safe and well fixed, and the animal be properly shod. So also when you are going to drive in a gig or chaise, it will be proper not only to *inquire* whether the harness, wheels, and other things be well adjusted, but to cast an eye over these matters yourself before you set off. There is no doubt, that many very serious accidents have arisen from neglecting these particulars: indeed it is very likely that more injuries have been occasioned by negligence beforehand, and inattention during the journey, than by any other cause whatever. It is not many months since a friend of your's was travelling with a lady and a child in a gig, when, having gone several miles on the road, he saw one of the traces loose and dragging after the horse; being a careful driver, he pulled

up his horse gently that the animal might not be frightened, replaced the loosened trace, fastened it well, and proceeded on his journey in safety. He had examined the harness before he set out, and while he was looking at the trace on one side, to see that it was fixed properly to the bar of the gig, he was assured by the person who put it on, that all was safe: supposing he might place confidence in his declaration, he believed him. It happened, however, that the other side was put on by another person who was standing by, and who had not secured it properly. Now if the horse had been restive, or frightened, or the falling of the trace had not been noticed just as it was, the lives of three persons might have been endangered by so trivial an oversight. "*Safe bind, safe find,*" is a good maxim at any time; but, perhaps, is at no time of greater service than in preparing for a journey.

In the next place, *never ride or drive with too slack a rein.* This is a rule which ought not to be despised, since, from a neglect of it, horses which are apt to stumble, sometimes fall down, to the great danger, if not the injury, of

the persons who are riding or driving them. Besides, in the case of fright, or running away, the command of the reins is gone; and the hapless rider or charioteer is hurled into danger before he is aware, and perhaps beyond recovery. Now suppose you should find it necessary, in consequence of the horse's running away, or any other cause, to quit your gig hastily, while it is going on, which do you think would be the best way of jumping out? This is a question of some importance, as your safety may depend upon the manner in which you would practically answer it. Do not, then, leap forward from the front of your carriage, for in that case you would come to the ground with more than double force, and would probably fall upon your head, by which your life might be taken away, even if you escaped the wheels. Secondly, do not jump out by the side of the gig; for in so doing you would probably be thrown with great violence on one side, and a leg or other limb might be broken in a moment. But, thirdly, if it be possible, leap out behind, taking care not to lean too forward, which is by far the safest method; for the motion of the carriage

being opposite to the direction of your leap, you will come to the ground with the least possible force. Patent preservers for letting loose the horses from carriages on any appearance of danger, have been lately advertised in the newspapers. Of their value I know nothing.

With respect to providing great coats, umbrellas, &c. when you are going a long journey, and are to be exposed to the weather, there has long been in use a very quaint maxim, which is this: "If it does *not* rain, *take such things with you;* and if it *does*, *do as you please*"—implying that if the weather be now ever so fine, it is not long to be trusted; and, if it be foul you will need no further motive to induce you to guard against it. A great coat is sometimes lost on a journey, or, having been lent, is not returned time enough for you to take it with you: in this case, a second shirt well supplies its place. The following is not a bad expedient in the case of a similar extremity: Mr. S— was going, last winter, to join his regiment in Ireland; and, as it was likely he would be obliged to ride withoutside the coach, he bought himself

a very large blanket. In this he enveloped himself as a silk-worm would do in its case. He reached Holyhead without experiencing much cold, and with a great saving to his purse: he had moreover the satisfaction of lending his friend, the blanket, to a poor woman at Holyhead till he came back. He only *lent* it to her, because she should not be tempted to sell or pawn it for spirituous liquors or any other indulgence that would really be less useful to her than the blanket.

As for travelling on foot, you think, perhaps, no caution is necessary on that head. To be sure, you need not much instruction to know how to take an ordinary walk, or an afternoon's ramble; but even on this subject, a celebrated poet and physician has thought it not unworthy of him to bestow the following hints.

> Begin with *gentle* toils; and, as your nerves
> Grow firm, to *hardier* by just steps aspire.
> The prudent, even in ev'ry moderate walk,
> At first but *saunter*, and by *slow* degrees
> *Increase their pace.**

In long journeys on foot, however, much more

* Armstrong's Art of Preserving Health, Book III. The whole passage, which is too long to insert here, consisting of 23 lines, is well worth the attention of those readers who can refer to the poem.

caution is needful, on account of the fatigue they occasion, and the heat they produce in the body, thus tending to bring on fevers, which are often hastened by the improper management of the travellers themselves. As it is not likely that any of you will have to travel any very great distance on foot, I shall not trouble you with any long directions on the subject; but only quote a few words of advice from an experienced traveller and a most benevolent man, the late Count Berchtold, an Austrian nobleman. "Those who travel on foot, especially in hot climates, should never sleep under the shadow of a tree, or near a hemp-field. Thirst is more effectually quenched by eating fresh fruit, and a morsel of bread, than by drinking water: lemon juice, or a little vinegar mixed with water, is better than water alone. After a long journey on foot, it is unwholesome to take a plentiful meal, or to sit near a great fire. Travellers on foot should wear a flannel waistcoat next the skin; and all travellers should *carefully avoid* DAMP BEDS, and the falling of the evening dew after a free perspiration." *

* Berchtold's Essay to direct and extend the Inquiries of Patriotic Travellers, Vol. I. p. 58—63.

Those who walk long distances, especially before their feet are well seasoned by the practice, are very liable to have blisters formed at the bottom of them; and very disagreeable, painful things they are, I assure you. If you should ever be troubled by them after a long journey on foot, you will be glad to employ so simple a remedy as that which I am going to recommend to you. Take a large needle full of worsted doubled; pass the needle through the blister from side to side, but leave the ends of the worsted in it, and clip off the remainder. The opening will cause the blister to discharge, and the worsted will keep it open, at the same time that it will prevent the outer skin from sticking to the inner. If you follow this plan at night, after your day's walk is over, you will find yourself the next morning as easy, and as able to walk again, as though nothing had happened. If the feet are merely inflamed without having any blister raised upon them, it is a good plan to wash them with milk-warm water on going to bed. This information I had from an experienced walker; and

I have no doubt, you will find reason to be thankful for the advice, should you ever be under the necessity of adopting it.

Effects of intense cold.—Although our climate is mild, compared to that of many other countries, very few winters pass without some melancholy examples of benighted travellers perishing in the snow, or falling victims to the inclemency of the weather. Often, indeed, it is to be lamented, the fatal effect is brought about in great measure by intoxication: the thoughtless man, carousing with his fellows till his reason is drowned in liquor, sets out, amidst the frost and snow of a winter's night, upon his fatal journey homewards; but soon missing his way, and unable to recover it, he wanders in confusion till fatigue or sleep overtake him, and then he sinks in death! Had he remained sober, and set out earlier, he might have reached his home in safety. There are seasons, however, in which it is almost impossible for the most sober traveller, without the greatest care and exertion, to escape with his life. Those of you who have

read Thomson's Seasons, cannot have forgotten the very touching description which that excellent poet has given of a shepherd lost in the snow.

. . . . Down he sinks
Beneath the shelter of the shapeless drift—
. . . . . .
In vain for him th' officious wife prepares
The fire fair-blazing, and the vestment warm:
In vain his little children, peeping out
Into the mingling storm, demand their sire
With tears of artless innocence. Alas!
Nor wife, nor children, more shall he behold,
Nor friends, nor sacred home. On every nerve
The deadly winter seizes; shuts up sense;
And, o'er his inmost vitals creeping cold,
Lays him along the snow, a stiffened corse,
Stretch'd out, and bleaching in the northern blast.
Winter, 305, 6. 311—321.

It is very necessary, while riding in extremely cold weather, to use every effort to keep the extremities warm, especially the feet, not only by means of clothing, and avoiding tight boots and shoes, but also by keeping them as much as possible in motion, which will help very much to keep up a brisk circulation of the blood, and may prevent the fatal effects which would otherwise follow. It has been recommended, when the situation is too confined to allow the feet to be moved freely, and two or more persons are exposed

together, as on a coach, that they place their feet, without shoes, against each other's breasts. It is of the highest consequence while abroad to guard against drowsiness in very cold weather—which may be followed by the sleep of death! if you so far yield to it, as to lie down exposed to the piercing air. If your strength should fail you in such a situation, exert yet one effort to preserve life, by making a cavity in the snow and covering yourself with it, leaving only a small opening for fresh air. This advice is founded on the experience of Mrs. Woodcock, late of Impington, near this place, who existed for more than a week in such a situation, and upon the well known facts that sheep have been preserved many weeks under the snow, and that tender plants are protected by it as by a warm covering. At all events it is much better than being exposed in the open air. Strong liquors or spirits are highly dangerous, after a journey of this kind: a moderate draught of cold water will be much preferable. If any parts of the body be benumbed with cold, they should be rubbed with such water, or with snow, and brought to

their usual heat, not suddenly but by degrees. A brisk walk, if the person is capable of it, would soon produce a most beneficial effect.

When cold has occasioned apparent death in any one, the body should be placed in a room without fire, and rubbed steadily with snow, or cloths wet with cold water; at the same time the bellows should be applied to the nostril, and used as is directed for persons who have been drowned. Nearly connected with this subject, is that of *Catching Cold*, as it is termed, which, though generally esteemed a trifling matter, is often, when neglected or improperly treated, the forerunner and cause of the most terrible disorders that afflict mankind. It is, in fact, an inflammation of the parts that are affected by it; and though it most frequently appears in cold weather, it is occasioned, for the most part, by a too *sudden change* of the body from *cold* to *heat*, instead of raising it *gradually*, when cooled, to its proper degree of warmth. As this is a medical subject, it would be improper in me to say much about it: I have, however, given you the

opinion of a very eminent physician,* confirmed, as I believe it now is, by the authority of the faculty in general. Though we are exposed to the danger of taking cold in almost every situation, yet, as we are especially liable to it when travelling in unfriendly weather, and as it is of some consequence to know how to treat it ourselves when we cannot have the benefit of medical advice, I shall extract for your use two or three observations from an eminent writer, not long since deceased. They are so reasonable in themselves, and so applicable to the case before us, that they are well worth your attention and remembrance.

* Dr. Darwin, who says, "A sudden change from cold external air to that in an heated room is certainly a much more frequent cause of inflammatory affections of the lungs than has hitherto been generally supposed. It is, I believe, *by far the most frequent cause of taking cold.*" Quoted by Dr. Beddoes in his "*Instructions*" for "*Persons of all Capacities*" with regard to health, &c. p. 157. In the next page is given an account from Dr. Cortum, a foreign physician, of two men who contracted a most violent pleurisy, "in consequence of being out many hours in the cold, and immediately going into an extremely hot room, and there solacing themselves with spirituous liquors."

"When a *cold*, attended with a cough, is fastening upon a person, what is proper to be done? This ought generally to be known, as the poor cannot afford, and others at first will seldom take the pains to seek, advice. It is not right, then, in the beginning of a *cold*, to make the room where you sit warmer than usual, to increase the quantity of bed-clothes, to wrap yourself in annel, or to drink large draughts of piping hot barley water, boiled up with raisins, figs, liquorice root, and the like. This is the right way to make the disorder worse. Perhaps there would be hardly such a thing as a bad cold, if people, when they find it coming on, were to keep cool, to avoid wine and strong drinks, and to confine themselves for a short time to a simple diet, as potatoes or other vegetables, with toast and water. I have known instances of heat in the nostrils, difficulty of breathing, with a short tickling cough, and other symptoms threatening a violent *cold*, go off entirely in consequence of this plan being pursued. I have found the pulse beat from 12 to 20 strokes in a minute less, after a person at the onset of a cold had continued quiet

three quarters of an hour in a cool room. It is not only warmth suddenly applied, that will throw any part of the body, after it has been starved or benumbed, into violent action and bring on inflammation: *strong liquors will do the same.*" These are the remarks of the late Dr. Beddoes in a very useful little book which he published some years ago at Bristol, under the title which you will find at the bottom of this page.*

A sudden change from hot to cold will also be productive of injurious effects: of this you have already had a striking proof in the melancholy fate of the young men alluded to by Dr. Franklin (see p. 85.) The change from heated to cold air, though not so violent as a plunge into the water, is often productive of rheumatic and feverish complaints; especially when persons who are in a high state of perspiration, or just beginning to cool, expose themselves to a draught of air for any considerable time.

* Instructions, from which persons of all capacities may learn when their own Health, or that of their Children, is about to decline dangerously; as also how to act in threatening Emergencies. By Thomas Beddoes, M.D.

Thunder-Storms.—Thunder, you know, is harmless: it is only the lightning which does mischief. The safest places in thunder-storms are beds, the middle of rooms, and cellars under ground. While sitting or lying in a room, the windows and doors should be closed, and care should be taken not to be near any large pieces of metal, which, by attracting the lightning, might injure the eyes, if no other injury should ensue. If you are overtaken by a thunder-storm, while on a journey, be sure never to take refuge under trees, for these may prove very treacherous friends, and draw down upon you that lightning which you were so desirous of avoiding.

Fainting.—Nothing alarms by-standers so much as seeing a person faint away, as it is called. This fainting arises from fright, loss of blood, or pain; and, however unpleasant it is, it is rather an antidote or a cure, than a disease; for, under fainting, there is a suspension of every faculty, —during it, the bleeding ceases,—the pain is not felt,—or the object that caused the fright is forgotten or removed. It is very seldom dangerous; and more harm has arisen from the impro-

per modes adopted to remove it, than from the fainting itself. Let the person be laid in the horizontal position, and pressure of every sort removed, as neckcloth, stays, &c.; if a man, let the shirt collar be unbuttoned, and nothing tight remain about the knees or arms. Stimulants are generally applied to the nose; and fortunately do no harm, because the person is insensible to their influence. If in a room, let the window be opened to cool the surrounding air, for if it be heated, even that stimulus is too great: for the same reason it is improper for persons to stand in a crowd around one who has fainted, and who wants all the fresh and cool air that can be admitted to him. Never shake the body with a view to rouse the vital spark, lest you darken it for ever.

Many persons, from extreme sensibility, are apt to faint when they see any one in distress, or witness any alarming accidents; and hence, instead of being of any use, they add to the general confusion. This state of mind, as it is much to be lamented, so it ought to be guarded against with the utmost care. It depends, in some measure,

no doubt, upon bodily constitution; but since we know it may be increased by indulgence, why should it not be checked, or perhaps cured, by good sense and resolution? It will be worth your while to try; and for your encouragement I can assure you that many persons, who were formerly so timid as to run away from the sight of a little blood, and to be amazingly alarmed at a shriek, have so far overcome this weakness, as to render themselves highly useful on many similar occasions. It is certainly right to sympathize with our fellow-creatures in their distress; but that degree of sympathy is best which, while it teaches us to pity, prompts us to relieve and assist them.

CONCLUSION.

HAVING thus collected for your instruction a variety of important directions, from different sources, it now only remains for me to request that you will endeavour to remember them, so that when opportunities occur, you may apply them to practice. It is one use of books, especially of

those which record discoveries, that they enable us to grow wise by the experience of others. Much, no doubt, may be learned by observation; and, if you can acquire the habit of carefully observing things as they happen to yourselves or to others, you will find such a habit very useful to you. But, if you attend also to what you read, as well as to what you see, you will profit as much from the observations of those who write, as you do from your own; and perhaps in many cases more so, for no one person can be supposed to have experienced so much himself as he can find related of the experience of others. Even in a book so small as this, you will find the observations and discoveries of many observing and intelligent men, related sometimes in their own language, and sometimes in mine, as the one or the other seemed most likely to fix and inform your minds. It is not to be supposed that any one man could have passed through all the circumstances I have described, or, if he had, that he could have invented all the ingenious methods of preventing or removing dangers, the account of which has so much interested you. Let it

be your constant care, then, to add to your own observation whatever you can collect from the labours and inventions of others. So shall you daily become more wise, more happy, and more useful.

Between man and other animals there are many points of difference; but none more striking, as has been often noticed, than that which relates to the power of profiting by experience and making continual improvements. Here we have an amazing superiority over the rest of the animal creation. The bees in Virgil's time no doubt made their honey and their wax exactly in the same manner as they do now: the frogs and the mice of which Homer sang, were as well acquainted with the nature of boys and mouse-traps as any of their race at the present day: and the sparrows which lived a thousand years ago built their nests of the same form, and with the same sort of materials, as their descendants do now. With respect to the same individuals too, it is remarkable how soon they acquire all the knowledge of which they are capable, and reach the limit which they cannot pass. They

continue all their lives to perform the same round of actions, and in the same manner; impelled and directed by a principle which, for want of a better name, we call instinct. But human beings have the faculty, if they will but exercise it, of deriving advantage from every thing they see. They are so constituted as to be able, if they please, to make continual progress in useful knowledge; and, as the poet says, to

Grow wiser and better as life wears away.*

But it is to be lamented that all human beings are very far from being alike desirous of profiting by their advantages. It is true, as you have learned from the Evenings at Home, that "one man walks through the world with his eyes *open*, and another with them *shut*." The difference between these two is very great indeed. While the one, like the sluggard, whose soul "desireth and hath nothing," spends his time in indolence, loitering about till life itself is a burden to him, and thus becoming the sport of accidents, the tool of knaves, or the very slave of circumstances,—the other is making his ob-

* Dr. Walter Pope, in "The Old Man's Wish."

servations upon every thing that passes around him, and learning from all some useful lessons of instruction. Which of these examples you will follow depends upon yourselves: which of the two I *wish* you to follow, your own good sense will easily determine.

In concluding these addresses, I would take occasion to remind you of your obligations to Him who hath hitherto preserved you. When you consider, as far as you *can* consider, *how many* have been compelled to

> ——————— drink the cup
> Of baleful grief, or eat the bitter bread
> Of misery,

while you have been continued in the free use of your limbs and faculties, and the enjoyment of your health,—what ought you *not* to render to that kind and gracious Benefactor, who hath watched over you continually, and "in whose hands are all your ways?" Cherish towards him the most lively gratitude; endeavour to please him throughout your lives; seek him with the utmost diligence; embrace, with all your hearts, the Gospel of his Son; and then you need not doubt that he will not only be your God and

your guide even unto death, but will also at length raise you to that happy place where you shall be out of the reach of accident and calamity in every form; where "there shall be no more pain," neither sickness nor death; and whence "sorrow and sighing shall flee away," to return no more for ever.

ADDITIONAL NOTES AND OBSERVATIONS.

Page 120. *A Howard and a Berchtold.*—The character of Howard is so universally known and admired, that it is needless to explain or justify the allusion to it, on the page here referred to. Of Count Berchtold, as he is much less known in England, it may be right to relate that he was an Austrian nobleman, who, like Howard, devoted his life to the service of mankind, and like him fell a victim to his humanity. The parallel between these two extraordinary men will appear more striking and complete, when it is stated that Berchtold travelled thirteen years in Europe and four years in Asia and Africa, for the laudable purposes of making himself ac-

quainted with the happiness and wretchedness of mankind ; of promoting the former, and of mitigating the latter, to the utmost of his power. He was the founder of the Moravian Humane Society, and of the Establishment of Preservation at Prague and Brunn. Some time before his death, in 1809, he converted his fine castle of Buchlowitz in Moravia, into a hospital for sick and wounded Austrians, in attending whom he caught an epidemic fever, which terminated his life.

The Count published several tracts and books to aid and extend his benevolent labours. The most known of his publications is that which is entitled, "Hints for Patriotic Travellers," in two volumes. Not only "patriotic," but all other travellers, may find in these hints many things worthy of their serious attention.

> Could birth, or talents, or even virtue, save
> Illustrious patriots from th' untimely grave,
> Could merit turn the envenom'd shaft aside,
> Then had not HOWARD, HAWES, nor BERCHTOLD died.

See a *Tribute to the Memory* of the "Triumvirate of Worthies," in the Report of the Royal Humane Society for 1811.

Page 121. In one sense Dr. Lettsom was the predecessor of Dr. Hawes, for he resigned the office of treasurer in 1796, when Dr. H. succeeded to that office and held it till his death in 1808. Dr. Lettsom then resumed it, and added to its duties the task, which Dr. Hawes had long executed, of preparing the Annual Reports of the society.

Foul Air.—As many persons have lost their lives by going into wells, vaults, and brewers' vats, without taking proper precautions, it may be useful to add a few observations on the subject. The following are taken from a paper which has been circulated by Mr. Plumptre, for the use of bricklayers, plumbers, carpenters, &c.

" Before any person descends into any well or vault, whether it has been closed any time or not, it is right to try whether the air be such that a person can breathe in it. This is to be done by letting *a candle* slowly down, as, where a candle will burn, there a man can breathe; and if the candle goes out, no one must venture down till the well be cleared; and the place at which the candle goes out will shew the height to which the

foul air reaches. This air is what is called by chemists *carbonic acid air*, and is what is called in the coal mines *choke damp;* some soils make this more than others, especially a blue gault. This air, being heavier than the common air, sinks to the bottom, and must be drawn out. The best way of doing this would be,

"1. By a pair of bellows, with a long tube or pipe fixed to the hole underneath; and which should extend almost to the surface of the water, or to the bottom of the well, if there be no water. By working these, the foul air will be drawn up, and fresh air will descend into the well. The blacksmith's bellows, being the largest, would be the best, which might be slung to the frame work over the well; and, in many places, a leathern engine pipe is to be had, which might be fastened to the hole underneath.

"2. If these cannot be obtained, the air might be *baled out by* a large bucket, constructed of coarse cloth, made in the shape of a bag, the lower end being fixed to a piece of wood (the bottom of a tub or barrel) of nearly the diameter of the well, and the cloth might be of any length,

with a hoop at the top and a string or line on each side of it. This being let down into the well, the bottom would rest on the water, and the whole of the bag would fall upon it, and as it was drawn up it would be filled with the foul air, and would bale it out. The air in this bucket can be tried from time to time by putting a candle into it; but, when the candle burns in that, it will not be safe for a person to go down without again letting down a candle into the well itself.

"3. A third mode might be what is called on board a ship *a wind-sail*, used for ventilating the cabins and *hold*. This is a sort of wide tube or funnel, made of canvas, with a rope running down the middle of it, and is kept open by hoops situated in different parts of its height. It is about two feet in diameter at the top, and tapers to about ten inches at the bottom. The top is hooded, and the upper part is open on one side for perhaps six feet, which is above the deck (or ground) and is placed to windward, so as to receive the full current of the wind, which entering the opening, fills the tube, and rushing down, drives

up the foul air. In low places, sheltered from the wind, this might be blown into by the blacksmith's bellows, or by a winnowing fan. And where a well is not deep, and a pipe or windsail are not at hand, blowing into the well with either the bellows or the winnowing fan might be sufficient. To persons whose business it is to go much into wells, &c. it would answer to keep a leathern tube to fit on to bellows, or one of these wind-sails for the purpose.

"4. A fourth mode might be, in wells where there is a pump, *to pump water down into it* for some time; when the water carrying a stream of fresh air along with it, and the pumping being kept up while the person was down, (and this stream might be directed, by a trough or pipe, to that part where he did not want to work,) there would be a supply of fresh air for his breathing.

"5. Another method might be to let down a bushel of quicklime, and dipping it into the water from time to time to slake it, if there be water in the well; or, if not, by pouring water, down upon it.

"These are some of the most easy methods which

may be tried. But, in all cases where persons go down, care should be taken to secure them so, and to keep an eye to them, that, in case of an accident, they may be drawn up again; and if they are at all affected by any bad air which may have remained, then the means recommended by the Royal Humane Society for recovering persons suffocated by noxious fumes should be applied. These means are, to throw *cold water* repeatedly upon the face, &c. drying the body at intervals, and, if the body feels *cold*, warm it by degrees, and do as in apparent drowning.

Bite of a Viper. In Mr. Skrimshire's Chemical Essays, Vol. I. p. 100, it is said, that the bite of this reptile may be cured by the application of sallad oil.

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